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Further Observations ON ACIDÆMIA IN GAS GANGRENE, AND ON THE CONDITIONS WHICH FAVOUR THE GROWTH OF ITS INFECTIVE AGENT IN THE BLOOD FLUIDS.

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IN connexion with gas gangrene one of us has already shown[1] that (1) the bacillus of Welch when cultivated in serum renders that medium acid; (2) the normal blood fluids by virtue of their alkalinity and antitryptic power antagonise the growth of the bacillus; (3) the blood fluids become a very favourable culture medium for the organism when we blunt off their alkalinity by acid, or their antitryptic power by trypsin, and more conspicuously when we do both; (4) the septicæmic gas infection which develops in an animal killed and incubated after intravenous inoculation with the microbe is associated with the development of the post-mortem acidosis; (5) in the living animal the evolution of gas gangrene marches hand-in-hand with a local and general acidosis; (6) in man the characteristic toxæmia of gas gangrene is correlated with the supervention of a very severe acidosis; and (7) an immediate improvement in the clinical condition of the patient is obtained by the intravenous injection of alkali. We have made further observations along these lines.

FURTHER DATA SHOWING THAT WE HAVE IN GAS-GANGRENE INTOXICATION AN ACIDÆMIA.

We may begin with those relating to acid intoxication in the gas-gangrene patient. Blood-alkalinity examinations were made by us working independently by different methods:—one of us (W.) titrating directly in capillary pipettes with dilutions of standard acid[2]; the other (F.) employing the method of Marriott. The former procedure determines only the reaction of the serum—i.e., the amount of base unoccupied by fixed acid. That reaction in the normal man stands, as the reader will remember, absolutely fast at N/35. Marriott's method[3] determines, in terms of hydrogen ion content, not only the reaction (pH) of the blood, but also the amount of the alkali (RpH) which is masked by CO_2. In the scale of notation this method employs (we here abbreviate from Marriott): "a reaction of 7·0 is the expression for neutrality. Figures less than this represent varying degrees of acidity; figures greater corresponding degrees of alkalinity. The reaction of the normal blood before the carbonic acid is expelled (pH) is approximately 7·5; and after that (RpH) about 8·5." We have ourselves never obtained for RpH any value higher than 8·3.

It appears clearly in Table A* that the direct titration and Marriott methods both furnish evidence that we have in the toxæmia of gas gangrene a very pronounced acid intoxication. The table further shows that there is, on the whole, very close agreement between these two methods of measuring acidosis. Where the one method shows an increase or diminution of alkalimity, practically always the other also shows it. At the same time we may be allowed to remark that the longer range and unequal subdivisions of the scale of notation employed in the direct titration have over the shorter range and uniform divisions of the Marriott scale the advantage of compelling attention to those quite small progressive increments of acid which are in the later stages of auto-intoxication of fatal import for the patient. The reader will appreciate this on turning to the Table. He will, for example, realise in connexion with Cases 4 and 7 that the Marriott readings pH 7·3, RpH 7·6, and 7·3, 7·7 (as against 7·5 and 8·3 for the normal) are not so arresting as the readings N/70 (as against N/35 for the normal) obtained for those cases by direct titration.

We may here, postponing for a little the discussion of the symptomatology and treatment of the acidæmia, investigate further the question of acid production in the blood, and the effect of blunting off its alkalinity upon the growth of gas-gangrene microbes, extending our observations to the gangrene bacilli of subordinate rank—i.e., to the *Vibrion septique* and the *Bacillus œdematiens*, *Bac. fallax*, and *Bac. aerofœtidus* of *Weinberg*—microbes which are all occasionally found in gas gangrene.

Question as Whether the Gas Gangrene Bacilli of Subordinate Rank resemble the Bacillus of Welch in producing Acid in Serum and growing more freely in Serum of Diminished Alkalinity.

With regard to the elaboration of acid by these microbes it will suffice to say: that with the possible exception of *Bac. fallax* they one and all when they grow freely make the serum acid. The influence of the blunting off of the alkalinity upon their growth in serum is brought out in the subjoined experiment.

Experiment.

Four portions of serum were implanted in bulk with the four microbes here in question. Ten subvolumes of each implanted serum were then taken, and to each was added one-tenth of a graduated dilution of normal sulphuric acid, the control portion of implanted serum being diluted to an equivalent extent. The separate portions were then filled into narrow tubes, shut off from the air by a layer of melted vaseline, and incubated. The amount of gas evolved was taken as the measure of growth, and the figures in the table are measurements in millimetres of the distance to which the plugs of vaseline were driven up by gas given off from the cultures.

Reaction of the serum.	*B. fallax.* Age of culture.				*B. aerofœtidus.* Age of culture.				*B. œdematiens.* Age of culture		*Vibrion septique.* Age of culture.		
	36 hrs.	48 hrs.	65 hrs.	4 days.	36 hrs.	48 hrs.	66 hrs.	4 days.	40 hrs.	60 hrs.	15 hrs.	24 hrs.	40 hrs.
Acid N/37	0	0	0	0	0	0	0	0	0	0	0	0	0
,, N/120	2	3	3	5	2	4	5	8	3	4	L B	4	4
Neutral	0	2	3	5	2	0	0	0	2	3	0	4	14
Alkaline N/160 ...	0	2	3	5	0	0	0	0	L B	2	0	5	14
,, N/100 ...	0	0	1½	3	0	0	0	0	L B	2	0	5	12
,, N/65 ...	0	0	1½	3	0	0	0	0	L B	2	0	5	12
,, N/57 ...	0	0	L B	L B	0	0	0	0	0	L B	0	5	12
,, N/47 ...	0	0	0	L B	0	0	0	0	0	L B	0	6	11
,, N/42·5 ...	0	0	0	L B	0	0	0	0	—	—	—	—	—
,, N/35* ...	0	0	0	0	0	0	0	0	0	0	0	L B	4

* Control without acid addition. L B. Large bubble.

Having seen that these gas-gangrene microbes of inferior rank behave in the same way as the bacillus of Welch in the respect that they grow with difficulty in normal serum and grow better and better as the serum alkalinity is blunted off, we pass to inquire whether the gas septicæmia and "foam-liver" *in mortuo* and the acid intoxication *in vivo* are also obtained with these microbes.

Experiment shows that we can with each of the microbes here in question reproduce, though perhaps in a less conspicuous form, the post-mortem appearances obtained with Welch's bacillus. As with that microbe, experiments on living animals do not give anything like as clear results as experiments on the dead: *first*, because a large proportion of the animals are resistant to the inoculations; and, further, because those that succumb, succumb very often without any warning, so that there is no opportunity for blood observations at the period when the acidæmia is to be expected. In the following experiment, however—and it is the only one in which the conditions were propitious for observation—the question of the production of an acidæmia is, so far as the *Vibrion septique* is concerned, resolved. And

[1] Wright, THE LANCET, Jan. 6th, 1917.
[2] Wright: Technique of the Teat and Capillary Glass Tube. Constable, London.
[3] Marriott: Archives of Internal Medicine, June, 1916, Part I., vol. xvii.

* See next page.

TABLE A.

Case No.	History.	When blood sample was taken.	Data furnished by Marriott's method. pH.	Data furnished by Marriott's method. R.o.H.	Data furnished by titration with acid.
1	Wound of forearm. Gas gangrene from the wrist to the bend of the arm. No constitutional symptoms. Amputation immediately above elbow. Good recovery.	At operation.	—	—	N/40
2	Very extensive wound of the leg with gas gangrene. Intense restlessness. Has to be propped up to get his breath. Respirations irregular, about 30 per min. Death.	3 hours before death.	—	—	N/50
		Shortly ,, ,,	—	—	N/60
3	Very extensive wound of the leg with gas gangrene. Lies cold, cyanotic, and almost comatose, breathing very deeply, about 40 per minute. Death.	1 hour ,, ,,	—	—	N/80
		Shortly ,, ,,	—	—	N/150
4	Large wound of thigh and extensive bruising of back, with widespread gas gangrene in both regions. Patient lies quite cold and pulseless. Respirations 15 per minute. Intravenous injection of 5 per cent. NaCl and 5 per cent. $NaHCO_3$. Within an hour is eating his dinner and reading the paper. Six hours afterwards renewed pain and tension in leg. Further very extensive operation. Death during the night.	Before injection.	7·3	7·6	N/70
		Immediately after injection.	7·65	7·95	N/35
		3 hours ,, ,,	7·4	7·8	—
5	Perforating wound of elbow with obliteration of vessels followed 24 hours later by the development of gas gangrene in the forearm. No constitutional symptoms. Amputation above elbow. Recovery.	At operation.	7·4	7·75	N/35
6	Gas gangrene is spreading upwards upon the trunk from a high amputation of the thigh. Patient is out of his mind and is pulseless and in a moribund condition. Intravenous injection of 500 c.cm. of a 5 % NaCl and 5 % $NaHCO_3$ solution, patient dying immediately after the injection.	Before injection.	7·05	7·05	N/100
		Immediately after injection.	7·3	7·7	N/50
7	Very extensive wound of buttock. Patient lies cold, pulseless, and breathing very deeply 28 times per minute. Intravenous injection of 500 c.cm. $NaHCO_3$ solution. Patient immediately revives. Seven hours later the pulse again becomes feeble and the respiration increases to 40 per minute. Intravenous injection of a further 250 c.cm., 5 % $NaHCO_3$, and 2·5 % NaCl solution. This was followed by the oral administration of 8 g. of lactate of soda every fourth hour. Next day patient's constitutional condition is not unsatisfactory. Death in the course of the night.	Before injection.	7·3	7·7	N/70
		Immediately after injection.	7·95	8·2	N/30
		Immediately before 2nd injection.	7·4	7·95	N/50
		Immediately after 2nd injection.	7·7	8·2	N/40
		24 hours after 1st injection.	7·7	8·0	
		At operation.	7·5	7·9	N/45
8	Extensive wound of thigh. Operation and removal of large mass of infected adductor muscles. General condition gives rise to no anxiety. 24 hours afterwards patient has developed an icteric tinge and a flagging pulse. Intravenous injection of 500 c.cm. $NaHCO_3$. Condition improves from day to day.	24 hours after, and immediately before, injection.	7·5	7·9	N/50
		Immediately after injection.	7·8	8·1	N/40
		48 hours after.	7·9	8·15	N/35
		72 ,, ,,	—	—	N/40
9	Extensive wounds of both legs. Patient very weak, pulse impalpable, respirations 32. Intravenous injection of 150 c.cm. $NaHCO_3$, followed by 8 g. of lactate of soda every 4 hours. 24 hours after patient is in much better condition. 48 hours after improvement continues. Towards evening recurrence of gas infection in leg. Disarticulation at knee. Next morning gas gangrene manifests itself in decumbent aspect of buttock. Further operation. Death.	Before injection.	7·4	7·7	N/70
		24 hours after.	7·4	7·8	N/40
		48 ,, ,,	7·7	8·1	N/30
		72 ,, ,,	7·8	8·1	—
10	Wound on inside of thigh. A large portion of the sartorius has been excised. Extension of gangrene downwards from lower border of incision. Patient pulseless and inoperable. Intravenous injection of 500 c.cm. $NaHCO_3$. Patient revives and an operation is successfully undertaken. 24 hours afterwards general condition is very satisfactory. Patient makes a very good recovery.	Immediately before injection.	7·4	7·65	N/60
		,, after ,,	7·9	8·05	N/30
		24 hours ,, ,,	7·6	8·15	N/35
		48 hours ,, ,,	7·4	8·0	—
11	Gas gangrene of arm. Constitutional condition satisfactory. Amputation in upper third of arm. Intravenous injection of 500 c.cm. 5% $NaHCO_3$. 24 hours after constitutional condition very satisfactory. Patient makes a good recovery.	Before injection.	7·35	7·9	N/45
		24 hours after injection.	7·65	8·3	N/35
12	Patient has had his leg disarticulated at the knee for gas gangrene and has had secondary hæmorrhage.	12 hours after operation.	7·4	7·95	N/40
13	Patient's leg had been amputated above the knee for gas gangrene, and he lies cold and pulseless, breathing 42 per min. Intravenous injection of 300 c.cm. $NaHCO_3$ solution. Some improvement of symptoms. Dies 12 hours afterwards.	Immediately before injection.	7·25	7·5	N/80
		,, after ,,	7·45	7·8	N/45
14	Leg amputated in upper third of thigh. Gas gangrene spreading upwards into trunk and scrotum. Intravenous injection of 450 c.cm. of 5 % $NaHCO_3$. Patient revives sufficiently to allow of an extensive operation. Dies 4 hours later.	Before injection.	—	—	N/60
		Immediately after injection.	—	—	N/56
15	Gas gangrene of leg. Disarticulation at knee. Patient nearly dies on the table. Intravenous injection of 400 c.cm. 5 % $NaHCO_3$. Death two hours later.	Immediately before injection.	—	—	N/80
		,, after ,,	—	—	N/35
16	Wound of chest and hæmothorax infected with *B. welchii*. Chest has been opened and drained. Icteric tinge. Pulse very feeble. Respiration very rapid. Intravenous injection of 460 c.cm. of 5 % $NaHCO_3$ solution, followed by lactate of soda, 8 g. every 4 hours. 24 hours constitutional condition no better. Death.	Immediately before injection.	—	—	N/70
		,, after ,,	—	—	N/40
		3 hours after injection.	—	—	N/50
		24 ,, ,, ,,	—	—	N/30
17	Extensive wound of thigh with gas gangrene. Multiple deep incisions. Patient has been lying pulseless and in a state of collapse for 24 hours since his operation. Intravenous injection of 500 c.cm. of 5 % $NaHCO_3$ solution. Immediate great improvement in his clinical condition. 8 g. of lactate of soda 4 hourly. 24 hours afterwards condition very satisfactory. Patient makes a good recovery.	Immediately before injection.	—	—	N/60
		,, after ,,	—	—	N/50
		7 hours ,, ,,	—	—	N/35
		24 ,, ,, ,,	—	—	N/35
18	Patient has had his left arm amputated for gas gangrene. The infection now develops in the right arm above elbow. Amputation in the upper third of arm. Intravenous injection of 500 c.cm. 5 % $NaHCO_3$ solution. Patient makes a good recovery.	Immediately before ,,	—	—	N/50
		18 hours after ,,	—	—	N/30
19	Leg amputated 12 hours before for gangrene. Little constitutional disturbance. Pulse good. Respiration 27. Makes a good recovery.	12 hours after operation.	7·45	8·1	—
20	Left foot amputated 12 hours before. Wound in right leg with gas infection. Amputation through middle of thigh. Pulse very rapid. Intravenous injection of 500 c.cm. 5 % $NaHCO_3$ solution. Patient makes good recovery.	Immediately before injection	7·5	8·0	—
		,, after ,,	8·0	8·4	—
21	Large buttock wound with some gas infection. Pulse fair. No air-hunger. Intravenous injection of 500 c.cm. 5 % $NaHCO_3$ solution.	,, before ,,	7·3	7·9	—
		,, after ,,	8·0	8·2	—
22	Leg amputated through middle of thigh for gas gangrene. Pulse small and weak. Respiration 30 per minute. Injected intravenously 500 c.cm. 5 % $NaHCO_3$ solution. 12 hours afterwards recurrence of gas infection and death.	,, before ,,	7·3	7·7	—
23	Leg had been amputated 24 hours before for gas gangrene. Very marked icterus. Pulse fair. No increased respiration. Gangrene not spreading. Oral administration of 8 g. of lactate of soda every three hours. Patient made good recovery.	Before alkali medication.	7·4	7·6	—
24	Amputation of leg for gas gangrene. Condition gives rise to anxiety. Intravenous administration of 500 c.cm. 5 % solution of $NaHCO_3$. Patient makes a good recovery.	Immediately before injection	7·3	8·0	—
		,, after ,,	8·0	8·3	—

Remarks.

CASE 4.—Samples of lymph exuding from wound. No. 1, alkaline, N/30. Film contains streptococci and a few *B. welchii*. No. 2, acid, contains *B. welchii* in pure culture. Pyo-sero cultures by the method of afterwashes. Pus implanted into the serum of blood taken before injection gives a growth of *B. welchii* and streptococcus in the whole series of afterwashes. The same pus implanted into serum of blood taken after injection gives a growth of streptococcus only.

CASE 5.—Exuded lymph obtained by incision into arm ½ hour after amputation is brownish in colour, acid in reaction, and contains *B. welchii* and streptococci.

CASE 14.—Lymph from incision into scrotum—alkalinity N/100. No bacterial infection.

we surmise that, given a sufficient supply of animals, the question would be resolved in the same sense also in connexion with the three other microbes—for these are, of course, morphologically much more closely allied to our type microbe—the bacillus of Welch.

Experiment.

Rabbit.—After taking a sample of blood from the ear the animal was inoculated in the leg with a culture of the *Vibrion septique*. Fifteen hours after the leg was found swollen. Eighteen hours after the animal appeared ill and was breathing very rapidly and deeply. Twenty hours afterwards 5 c.cm. of blood were taken from the heart and the *Vibrion septique* was obtained from this by culture. Twenty-two hours afterwards the animal was lying comatose, and it was then killed after withdrawing a further sample of blood from the heart.

Measurements of Alkalinity made by the "Direct Titration" and the Marriott Method.

Time when blood specimen was taken.	Direct titration.	Marriott method.	
		pH.	RpH.
At outset	N/35	7·5	8·2
18 hours after...	—	7·45	7·9
20 hours after...	N/50	7·4	7·9
At death, 22 hours after ...	N/100	7·3	7·6

Further Experiments showing that the Growth of the Bacillus of Welch is favoured when the Alkalinity of the Serum is Reduced.

We now revert to the acidæmia produced by Welch's bacillus. We show, in *Exp. 1* below, the extent to which the growth of the microbe is favoured in the blood fluids of the gas-gangrene patient drawn off in the stage of extreme acidosis; in *Exp. 2* the effect of graduated additions of sulphuric acid on the growth of the microbe in normal serum; and, in *Exp. 3*, the effect of adding to the serum CO_2 to saturation.

Experiment 1.—Here we took (*a*) the serum from a moribund gas-gangrene patient; and (*b*) a normal serum. The gas-gangrene serum was the last sample from Case No 3. (Table I.). Its alkalinity corresponded to N/150 and its antitryptic power was eight times normal. In each case a series of equal volumes of serum were filled into narrow tubes. Each of these volumes was then implanted with one-tenth of a graduated dilution of a gangrene bacillus serum culture diluted down with normal serum. Melted vaseline was then poured on to the top of the serum. As before the amount of gas formed was taken as the measure of growth, and the figures in the table give the height of the gas column.

Dilution of the serum culture implanted.	Gas-gangrene serum. Number of hours of culture when column of gas was measured.		Normal serum. Number of hours of culture when column of gas was measured.	
	18 hours.	24 hours.	18 hours.	24 hours.
Undiluted	Over 60 mm.	Over 60 mm.	Large bubble.	3 mm.
Diluted 4-fold	45 ,,	,, 60 ,,	0	0
,, 16 ,,	34 ,,	,, 60 ,,	0	0
,, 48 ,,	25 ,,	40 ,,	0	0
,, 150 ,,	15 ,,	36 ,,	0	0
,, 500 ,,	Large bubble	25 ,,	0	0
,, 2,000 ,,	,,	25 ,,	0	0
,, 6,000 ,,	0	0	0	0
,, 24,000 ,,	0	0	0	0

We see here that, despite the restraining influence exerted by the 8-times increased antitryptic power, the acidæmic gas-gangrene serum gives a culture with an implantation 2000 times smaller than that required for the normal serum.

Experiment 2.—A serum was taken and was implanted in bulk with a very small quantity of a culture of the bacillus of Welch. Of this infected serum a series of equal volumes were then filled into narrow tubes. To these were added graduated quantities of standardised sulphuric acid, the quantities being such as to give, in the central tube of the series, serum of a neutral reaction; with, on the one side, tubes of increasing acid; and, on the other side, tubes of increasing alkali content. Melted vaseline was then poured on to the top of the tubes, and they were placed in the incubator. The amount of gas evolved was taken as a measure of growth, and the figures in the table give the height of the gas columns in millimetres.

Serial number of tube	1	2	3	4	5	6	7	8	9
Reaction of the serum.	Acid N/60.	Acid N/70.	Acid N/110.	Acid N/200.	Neutral.	Alkaline N/330.	Alkaline N/150.	Alkaline N/60.	Alkaline N/65.
Result after 24 hours.	—	—	—	SB	SB	—	—	—	—
,, ,, 30 ,,	—	—	—	5·5	8·0	SB	—	—	—
,, ,, 46 ,,	—	—	6·5	9·5	11·5	7·0	LB	—	—
,, ,, 50 ,,	—	—	8·0	11·0	13·0	8·0	7·5	—	—

SB, Small bubble. LB, Large bubble.

Experiment 3.—A thick bacterial suspension was made from a 24 hours' old blood-agar culture of the bacillus of Welch; and this suspension was diluted 2, 4, 8, 16, 32, and 64 times. Of the original suspension 1 wash (i.e., circ. 1/25 vol.) and 2 washes, and of each dilution one wash—corresponding to 1/2, 1/4, 1/8, 1/16, 1/32, and 1/64th wash of the original suspension—were implanted into normal serum in capillary pipettes, the procedure for anaerobic culture being the "gas-lock" procedure illustrated in Fig. 2 of the previous paper.[4] In the experiments here in question the "butt end" containing the serum in bulk was, for the *control experiments*, connected up with the gas-supply; and, for the *substantive experiments*, with a Kipp's apparatus generating CO_2, and the serum was in each case saturated by letting it stand in contact with gas, and by conveying into it bubbles of the gas. The results, read off after the tubes had been incubated for a 24 hours, were as set out in the following table:—

Derivation of the serum, and form in which it was employed.	Amount of the implantation. 2 washes.	1 wash.	½ wash.	¼ wash.	⅛ wash.	1/16 wash.	1/32 wash.	1/64 wash.
A. E. W.'s serum unaltered	0	0	0	0	0	0	0	0
Same serum saturated with CO_2 ...	×	×	×	0	0	0	0	0
L. C.'s serum unaltered	0	0	0	0	0	0	0	0
Same serum saturated with CO_2 ...	×	×	0	×g	×	×	×g	×g
J. F.'s serum unaltered	0	0	0	0	0	0	0	0
Same serum saturated with CO_2 ...	×g	×g	×g	×g	×g	×g	×g	×g
A. E. W.'s serum unaltered	×g	0	0	0	0	0	0	0
Same serum saturated with CO_2 ...	×g	×g	×g	×g	×g	×g	×g	×g

×, Culture. ×g, Culture with gas formation.

Question as to Whether the Bacillus of Welch Grows More Rapidly, and Produces More Gas, in Blood Fluids to which Glucose has been Added.

In connexion with the pathology of gas gangrene another general problem suggests itself to the mind. This is the problem as to whether the special predisposition of wounded muscle to gas-gangrene infection is due to its carbohydrate content. The theory that we have here the cause of the infection finds its principal support in the circumstance that it is the liver—the organ of highest carbohydrate content—which is in the dead animal, after intravenous inoculation, the seat of the most fulminating infection. But this facile reasoning leaves out of sight that when we inject an animal intravenously and intramuscularly with the same quantities of culture, and then kill and incubate, we obtain pullulation of the microbe with enormous gas production in the peritoneal fluid, which is not, we may assume, specially rich in sugar; and no visible effects whatever in the inoculated muscle. And, again, when we inject intravenously and then kill and immediately extirpate the liver—our principal fount of sugar—we still get our fulminating post-mortem gas septicæmia.

But even apart from this, the idea that the infection of wounded muscle is conditioned by the circumstance of the microbe finding here at its disposal a provision of sugar encounters in the thoughtful mind many difficulties. Külz showed that severe muscular exercise used up every trace of glycogen in the body. Consequently, in men wounded during the intense fatigue of the battle—and that intense fatigue has often been brought into association with the onset of gas gangrene—we cannot take it for granted that their muscles contain glycogen. Nor can we know whether that

[4] Loc. cit.

carbohydrate, if still present, would pass into solution and be placed at the disposition of the microbe. And again we do not know whether the lymph in the muscles contains even as much sugar as the circulating blood. Since the muscle uses up sugar the probabilities would seem to be rather the other way. All these points would seem to invalidate the theory that it is the higher percentage of sugar which is responsible for the predisposition of muscle to gas-gangrene infection. And it is not as if we had here a theory which alone could supply an explanation of this disposition. We have seen that every addition of acid—even of carbonic acid—favours the growth of the bacillus of Welch in serum; and we know that functioning and devitalised muscle elaborates carbonic and lactic acid; and that we have, therefore, in muscle fatigued, or cut off from its blood supply by trauma, tourniquet, ligature, or collapse of the circulation, a local reduction of alkalinity which would be favourable to the development of the gas gangrene bacillus.

Enough will have been said to show that the problem as to whether the special predisposition of wounded muscle is due to its containing sugar is, like all problems of causation, much more complex than immediately appears. But clearly there is nothing to prevent us determining by experiment whether an addition of glucose to normal serum aids the growth of the bacillus of Welch and promotes gas formation, and whether such serum constitutes as favourable a medium as "acidosed" serum.

Experiment.—The method of experimentation was the same as in Experiment 3 in the previous subsection, with the difference that here coal gas was employed in the substantive and control experiments alike, and that for the substantive experiments there was employed a serum to which there had been added one wash (*circa* 1/25 volume) of a glucose solution. The results, as before, were read off after 24 hours. And in this connexion it is important to emphasise that it is the early results which differentiate most clearly between the different sera, and of course it is the early results which would come into account in connexion with infection in vivo.

Derivation of the serum and form in which it was employed.	Amount of the implantation. 3 washes.	2 washes.	1 wash.	½ wash.	¼ wash.	⅛ wash.	1/16 wash.	1/32 wash.	1/64 wash.
A.E.W.'s serum	×	0	0	0	0	0			
Same with 1% glucose	×	0	0	0	0	0			
,, ,, 2/3 wash of normal H_2SO_4	×	×	×	×	×	0	0		
A.E.W.'s serum	×	—	×	×	×	0	0		
Same with 1% glucose	×	×	×	0	0	0	0		
A.E.W.'s serum	—	×g	×	0	0	0	0	0	
Same with 0·5% glucose	—	×g	×g	0	0	0	0	0	
,, neutralised with H_2SO_4	—	×g	×g	×g	×g	×g	×g	×g	
A.E.W.'s serum	—	×	×	0	0	0	0	0	
Same with 0·5% glucose	—	×	×	×	0	0	0	0	
,, neutralised with H_2SO_4	—	×g	×g	×g	×g	×g	×g	×g	
L.C.'s serum	—	0	0	0	0	0	0	0	
Same with 1% glucose	—	0	×	0	0	0	0	0	
,, ,, 0·5% ,,	—	0	0	0	0	0	0	0	
,, ,, 0·25% ,,	—	×	×	0	0	0	0	0	
,, ,, 5/7 wash normal H_2SO_4*	—	×g	×g	×g	×g	×g	×	×g	
A.E.W.'s serum	—	0	0	0	0	0	0	0	
Same with 1% glucose	—	×	×	0	0	0	0	0	
,, slightly acidified with H_2SO_4	—	0	0	0	0	0	0	0	
,, saturated with CO_2		×	×	×	0	0	0	0	
A.E.W.'s serum	—	×g	0	0	0	0	0	0	—
Same with 1% glucose	—	×g	0	0	0	0	0	—	—
,, neutralised with H_2SO_4	—	×g	×g	×g	×g	×g	×g	×g	0
,, saturated with CO_2	—	×g	×g	×g	×g	×g	×g	×g	×g
J.F.'s serum	—	0	0	0	0	0	0	0	0
Same with 1% glucose	—	×	0	0	0	0	0	0	0
,, saturated with CO_2	—	×g	×g	×g	×g	×g	×g	×g	×g

×, Growth. g, Gas formation.

* Taking a wash as equivalent to 1/25 vol. 5/7 of a wash of normal acid would just neutralise normal serum.

It will be seen from the above table that the addition of glucose to the serum does not exert upon the growth of the bacillus of Welch any constant or marked favouring influence. And it is clear that that favouring influence, where exerted, does not admit of any comparison with that obtained by neutralisation of the serum by sulphuric acid, or the blunting off of the alkalinity by saturation with CO_2. It also comes out clearly that the evolution of gas is favoured far more by the blunting off of the alkalinity of the serum than by the addition of glucose. This last point is brought out in a very conspicuous manner in the subjoined experiment.

Experiment.—The technique employed was that of cultivating in narrow glass tubes covered in by vaseline; and one volume of the undiluted or diluted bacterial suspension was added in each case to 9 volumes of normal serum. The amount of gas evolved was determined by measuring the height of the column of gas.

Derivation and form of serum employed.	Duration of incubation.	Amount of implantation. One-tenth volume of bacterial suspension. Undiluted.	Diluted 5-fold.	Diluted 25-fold.	Diluted 125-fold.	Diluted 625-fold
(*a*) Serum with 1% glucose	24 hrs.	10 mm.	L B	0	0	0
(*b*) Serum neutralised with H_2SO_4	,,	14 ,,	17 mm.	11 mm.	0	0
(*a*) Serum with 1% glucose	72 hrs.	14 ,,	14 ,,	14 ,,	14 mm.	0
(*b*) Serum neutralised with H_2SO_4	,,	23 ,,	30 ,,	30 ,,	15 ,,	0

L B. Large bubble.

SUMMARY AND CONSIDERATION OF THE SYMPTOMATOLOGY AND TREATMENT OF THE ACID INTOXICATION IN GAS GANGRENE.

The observations set out above have confirmed and brought into clearer light the fact that the growth of the microbes of gangrene is favoured by every reduction of blood alkalinity, and they suggest that wherever, as in the dead body and the muscles, we come upon conditions which specially favour the growth of the gas-gangrene bacillus, there the factor of acidosis is likely to be the operative factor. And it has been further demonstrated that the microbes of gangrene can by elaborating acid make for themselves favourable conditions at the site of infection, and in the blood generally.

SYMPTOMATOLOGY.

The suggestion that we have to see in gas-gangrene toxæmia an acidæmia has encountered opposition. It has been objected: Air-hunger is not, as it ought to be, a feature, and an outstanding feature, in the clinical picture of gas-gangrene toxæmia. Nor is there in the toxæmia of gas gangrene anything else to remind us of the classical symptoms of acidosis.

From the contention that air-hunger does not enter into the picture of gas-gangrene toxæmia the appeal is to the clinical facts. We have, in the large majority of cases of gas gangrene, well-marked hyperpnœa; in some, we have quite classical air-hunger; and where we find this symptom absent it is, we may suggest, because the agonal cold is already creeping up over the gas-gangrene patient. In such circumstances, with internal respiration practically extinguished and the pouring into the blood of CO_2 and further acid products excluded, air-hunger is obviously ruled out.

That the clinical picture of gas gangrene toxæmia fails to correspond with our mental picture of acidosis may depend upon our mental picture having been arrived at by erroneous generalisation. If, for instance, that picture has been built up by generalising from examples of only one form of acidosis, and if there have been admitted into it features referable to other toxic agency and unrelated to acidosis, the criterion by which we judge will necessarily mislead. If, for example, we let ourselves be dominated by the idea that diabetic coma displays the symptoms of acidosis, and allow ourselves to identify the clinical picture of acidosis with that of diabetic coma we shall inevitably, as has been done, conclude that we cannot in gas-gangrene toxæmia be dealing with an acidosis. But, then, let us reflect upon our position when once it stands fast that gas-gangrene toxæmia is associated with an acid intoxication. Clearly, we shall then, by parity of reasoning, be compelled to conclude that we cannot in diabetic coma be dealing with an acidosis. Such a dilemma teaches that we ought to generalise upon a wider basis, and to bring under contribution, when we are building up our clinical picture of acidosis, all the known forms of acidosis.

We have an acidosis not only in diabetic coma and gas-gangrene toxæmia, but also in many cases of nephritis;

further, as recently shown by Rogers in Asiatic cholera[5]; and again, as one of us—on the basis of *a priori* reasonings,[6] and blood examinations of cases from the siege of Ladysmith,[7] and infantile cases[8]—has contended in scurvy, i.e., in the cachexia brought about by a dietary of cereals or dried and salted meat exclusively, or of these foods in combination. And of course we have—and this is, perhaps, the most elucidating of all—the condition of the "acid rabbit"—the acidosis produced experimentally in that animal by the oral administration of hydrochloric acid.

Constitutional symptoms of acidosis.—The constitutional symptoms common to all these forms of acidosis would seem to be two: First, we have the hyperpnœa which has already been under discussion. With respect to this, it has come home to us that, though an outstanding symptom when muscular exercise puts a strain upon the respiratory mechanism, hyperpnœa may easily cease to be apparent or even make default when the patient is at complete rest and the internal respiration is cut down. The second important clinical feature of acidosis is that the life of the patient or experimental animal in this condition hangs upon a thread. We leave our gas-gangrene patient for an hour, and we come back and find him dead. The same, as we gather, holds of the cholera patient. The diabetic coma and the nephritic patient also may go out very suddenly. And in the accounts of ship-scurvy—and in particular in that memorable account in Lord Anson's "Voyage of the *Centurion*"—there is constant reference to patients dying quite without warning, and to death being wont to follow very suddenly upon the least physical exertion. Exactly the same holds of the "acid rabbit." To these clinical features may be added a third. Nephritic, and in particular scorbutic, and gas-gangrene patients have a sallow earthy aspect which immediately brings up to the mind of those familiar with the facies the possibility of acidosis.

Local manifestations.—In the matter of local manifestations there would appear to be—but, of course, the symptomatology will here vary with the local source of the acid—a disposition to serous effusion into the tissues, and in particular—perhaps here to rectify the local acidosis—an effusion into the site of the acid production. Fischer, in his work on nephritis, has drawn special attention to acidosis as a cause of imbibition, and very probably this factor does play a part in the causation of œdema in the nephritic. The same almost certainly holds true of gas gangrene. We have there a very conspicuous serous infiltration of the tissues, and the microbic invasion of the subcutaneous tissues is here preceded by an advance wave of diminished alkalinity marked out by a purplish mottling of the skin. In scurvy also we have, in the infant, as a characteristic early symptom, muscular pain and tenderness, which probably speak of effusion; and in the accounts of land-scurvy—such as those in Calvert's collection of the "Travels of the Early Explorers of Australia"—we have frequently recurring references to painful effusions in the calf and thigh; and in Lord Anson's Voyage and the works of Lind on sea-scurvy we have accounts of anasarca and effusion into serous cavities. Out of all these elements, and such others as may perhaps present themselves in connexion with still undescribed forms of acidosis, the clinician of the future will build up an accurate generalised picture of its symptomatology. In time of war, having laid a sufficient foundation of pathological observation, the pressing task is to get on to the effective treatment of the acidosis of gas gangrene.

TREATMENT.

The treatment of the acidæmia of gas-gangrene toxæmia follows directly from its pathology. We may discuss first the constitutional, and then the local treatment.

Constitutional treatment.—We have, as has appeared in the histories embodied in Table I., employed, as is done in grave diabetic acidosis, intravenous injections of alkali, following these up, where a relapse had to be guarded against, by lactate of soda administered by the mouth in doses of 8 g. four-hourly until the urine becomes alkaline. For the intravenous injections we have employed a 5 per cent. solution of $NaHCO_3$, preferring this for two reasons to a solution of carbonate of soda:—*first*, for convenience of dosage, the bicarbonate being, as distinguished from the water-holding carbonate of soda, a non-efflorescent salt; and, secondly, to guard against local injury to tissues in case of any fluid escaping from the needle during the injection. We have not allowed ourselves to be influenced by the circumstance that bicarbonate is during sterilisation partially converted into carbonate, for the originally 5 per cent. or three-fifths normal bicarbonate solution remains, no matter how much is converted into carbonate, still a three-fifths normal alkaline solution. The quantum of alkaline solution chosen—i.e., 500 c.cm.—would appear to have been appropriately chosen, for this has sufficed to restore, or just more than restore, to the blood its normal alkalinity. The lactate of soda—made by neutralising lactic acid by soda—was chosen for the after-treatment both because it is very easily tolerated by the normal stomach and because it is after absorption very rapidly (in the normal man in the course of a very few minutes) converted into carbonate. On account of the nausea and vomiting at the onset of gas-gangrene toxæmia the oral administration of lactate of soda cannot at that stage replace intravenous injection.

Local treatment.—Here two points may be adverted to. The *first* relates to the anæsthetic for the operation; the *second* to the after-treatment of the amputation stump or incised tissues. In relation to the anæsthetic it would appear to be the experience of all that chloroform must be avoided; that warmed ether gives much better results, and that nitrous oxide with oxygen is far the best anæsthetic. It has been suggested in connexion with these findings that the chloroform, and to a less degree the ether, narcosis may in the already acidæmic patient aggravate the acidosis; but this would perhaps not be of so much moment in the case of the patient whose blood alkalinity had before operation been restored to the normal. With regard to the after-treatment of the wound it is of fundamental importance where infected or "acidosed" (and because of that very easily infected) tissue has to be left behind to evacuate all the corrupted lymph, replacing it by lymph normal in alkalinity; normal, if this should come into account, in sugar content; and normal (and that in this case means equipollent with the blood fluids) with respect to antitryptic power. To this end a local lymphagogue must be resorted to; and one of us has already more than once called attention to the very striking improvement obtained in these cases by the free application of 5 per cent. salt solution.

Results in cases of gas gangrene treated by intravenous injection of 5 per cent. bicarbonate of soda.—It is the bane of scientific research that if ever there is suggested by it a therapeutic measure, that procedure is, despite all its advocates may do, represented as either a complete panacea or a measure which disappoints legitimate expectation. If a little quiet thought were given to the therapeutic problems in question all this would be avoided. Here, for instance, in connexion with the treatment of the acidosis of gas gangrene, one ought not to have to preface one's recommendation of alkaline injections by a formal confession of faith that the toxæmia of gas gangrene must be something more than an acidosis. After comparing in the rabbit simple acidosis with gas gangrene infection one would wish to be credited with the power of recognising that the two conditions are not identical. Again, even if one were supposed to believe that we are in the toxæmia of gas gangrene confronting a simple acidosis, one would wish to be credited with the power of seeing that one cannot in a severe acidæmic case, where the whole salt content of the blood has been profoundly altered, hope by an injection of bicarbonate of soda to bring about a *restitutio ad integrum*. And even if one did think that a *restitutio ad integrum* could be effected, one would wish to get credit for seeing that one could not hope to get durable benefit from this where one has neither completely extirpated the infection nor yet successfully treated it by "drainage of the tissues." And, lastly, when one recommends the injection of alkali in gas-gangrene infection, one would wish it to be borne in mind that we have in such cases nearly always an associated streptococcus infection which would not be directly affected by our injection of alkali.

In view of these considerations, we have not even attempted to collect and present any comparative statistics of gas gangrene treated with and without alkali. That, as it seems

[5] THE LANCET, 1917, ii., 745.
[6] Wright: On the Pathology and Therapeutics of Scurvy, Scientific Appendix, Report of the Army Medical Department for 1895.
[7] Wright: On the Pathology and Therapeutics of Scurvy. THE LANCET, August 5th, 1900.
[8] Wright: Discussion on the Ætiology of Scurvy. Transactions of the Epidemiological Society of London. New Series. Vol. xxiii. Pp. 94-97, and 108.

to us, would be as much a logical abuse as to try to establish by comparative statistics of tracheotomised and non-tracheotomised cases of diphtheria the advantage of tracheotomy in laryngeal obstruction. In either case resort to the particular procedure is prescribed by common-sense, and is approved by the immediate striking improvement achieved in cases otherwise desperate. But in connexion with gas-gangrene infection it may perhaps be permissible to point out that the benefit of alkali treatment is almost certainly not summed up by saying that by it the inoperable acidæmic cases become operable. We may, in view of the data we have set out, quite reasonably hope that by the early administration of alkali the acidæmia may be forestalled; and also that by it, so long as the circulation is still intact in the site of infection or its immediate neighbourhood, an obstacle may be placed in the way of the growth of the infective agent.

In conclusion, we wish to express our acknowledgments to Major J. W. West, R.A.M.C., for much helpful assistance in the study of cases of gas gangrene. We desire also to thank Dr. Weinberg, of the Pasteur Institute, for supplying us with cultures of the gas-gangrene microbes discovered by him. To Captain H. Henry, R.A.M.C., also we are indebted for other cultures of these microbes.

Hunterian Lecture

ON

THE INTRODUCTION OF THE MODERN PRACTICE OF BONE-GRAFTING.[1]

Delivered before the Royal College of Surgeons of England on Jan. 21st, 1918,

BY

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MR. PRESIDENT AND GENTLEMEN,—The history of human invention is ever the same; we find that the path which leads to final success is always strewn with the wreckage of efforts which failed. We sometimes wonder why these efforts failed; looking back, with the knowledge of the present, we can see they often had in them all the elements of success, and yet they failed. Why did John Hunter not succeed in giving the practice of grafting, which has at last gained the recognition of surgeons, a permanent place in surgery? He had come as near as any man has yet come to an understanding of the nature of living matter and of the conditions which are necessary for successful implantation of living tissues. We now see that he failed because of sepsis; sepsis ruined the brilliant programme he had conceived. If Pasteur and Lister had been born before him he would have succeeded and been saved many vain quests. Many of Hunter's projects failed because they appeared before the times were ripe for them.

INCEPTION OF THE MODERN PRACTICE OF BONE-GRAFTING.

In a former lecture we have seen how Ollier, of Lyons, in 1858, 65 years after Hunter was dead, and when his grafting experiments had passed out of mind, commenced a systematic series of attempts to transplant periosteal grafts. He succeeded, and yet he failed; his experiments did not induce surgeons to employ periosteal grafts to remedy defects in bone. His work fell dead from his laboratory because of two reasons: (1) Because of sepsis; (2) because he did not realise that certain conditions are necessary to stimulate bone-forming cells into activity. Bone and muscle cells are alike in this: their growth is dependent on action; they thrive only so long as they have work to do. Ollier wondered why the fragments of bone which he had succeeded in raising from slips of periosteum planted beneath the scalp or amongst muscles ceased to grow and tended to disappear. These bony grafts withered because they were not subjected to the strains and stresses which rouse the activity of osteoblasts. To use a Hunterian phrase, they were "conscious of imperfection" and hence became absorbed.

The modern practice of bone-grafting was invented by Macewen in the infirmary of Glasgow in 1880. The conditions which determined his success were these: 1. He operated in the building where, 14 years previously, Lister had shown how sepsis could be conquered. 2. He held the opinion that bone was, as Hunter and as Goodsir had thought, a living tissue which possessed the power of surviving, reproducing itself, and of thus being able to serve as a graft. 3. By a fortunate chance he planted his tibial grafts in a situation where they soon became subjected to muscular stresses and strains. In a short time bony fragments gathered from the legs of six boys became intrinsic parts of the humerus of a seventh; from the moment of primary union the bone cells of the graft were brought under the stimulating impulses of the biceps and triceps. Osteoblasts are the obedient slaves of muscles; muscular dominance is their breath of life. The reconstruction of that boy's right humerus in Glasgow Infirmary in 1880 is the first paragraph of a new chapter in the history of surgery. The paragraph could not have been written earlier because the necessary data were not in existence for its composition.

The impulse, however, which has given bone-grafting its present extended use in orthopædic surgery came not from Sir William Macewen's initial success, but from another operation altogether. I have described in a former lecture the conditions which induced Arbuthnot Lane to introduce operative means for the treatment of fractures, particularly for those of the leg. He really introduced a new principle—the principle of internal splints. Up to April, 1894, surgeons sought to maintain apposition and immobilisation of fragments by means of external splints. Arbuthnot Lane conceived the idea of internal splints. His internal splints were metallic. We shall see that modern American surgeons have substituted for Lane's screws and plates live bone-grafts to serve as internal splints.

HUNTER'S OBSERVATIONS ON GRAFTING.

When I now turn backwards to examine the experiments carried out by Hunter on grafting it is not to extol his knowledge or his prescience; that would be a fruitless task. My object is much more utilitarian: it is simply to bring before you certain neglected observations of his which are of service in surgery, not only at the present time, but for all time. In the strict sense of the term Hunter never did graft bone. It is true he watched those wonderful masses of bone which Nature grafts and rears each summer on the heads of deer—studied their growth, decay, and death. Hunter's knowledge of bone-grafting is founded on his experience of tooth and of spur transplantation. He rightly regarded dentine as a modified form of bone. The root of a tooth is covered by bone; it is secured to its socket by periosteum. The conditions of successful tooth transplantation are those which regulate success in bone-grafting. We therefore turn for a moment to Hunter's experience in this department of surgery.

Observations on Tooth Transplantation.

Let me first quote a case from his practice.

"A gentleman had his first bicuspis knocked out and the second loosened. The first was driven quite into his mouth and he spit it out upon the ground, but immediately picked it up and put it in his pocket. Some hours afterwards he called upon me, mentioned the accident, and showed me the tooth. It was not quite dry, but very dirty, having dropped on the ground, and having been some time in his pocket. I immediately put it into warm water, let it stay there to soften, washed it as clean as possible, and then replaced it, first having introduced a probe into the socket to break down the coagulated blood which filled it. I then tied these two teeth (the detached first and the second loose, premolar) to the first grinder and to the canine with silk, which was kept on for some days and then removed. After a month they were fast as any teeth in his head."

Hunter replaced that tooth because he knew it was still alive; he knew it could be kept alive for at least 24 hours outside the body. The success of the operation of transplantation he writes "is founded on a disposition in all living substances to unite when brought into contact with one another."[2] He discovered that dead teeth could be implanted; in some cases they held, even cleared up so as "to take on the appearance of living teeth"; but in most

[1] From a series on "The Anatomical and Physiological Principles Underlying the Treatment of Injuries of Muscles, Joints, and Bones."

[2] Collected Works, ii., 161.

cases they did not hold, or, if they held, their roots became eroded and absorbed, and such grafts dropped out.

Let us look for a moment at the criteria applied by Hunter to measure the vitality of a part. He regarded enamel as a dead substance: (1) because it had no power of repair; (2) it contained so slight an amount of animal matter; (3) madder, when circulating in the blood, never stained the enamel of teeth. The dentine—or as he called it, the "bony matter"—of a tooth, although it possessed no blood-vessels, and thus lay outside the blood circulation, had "most certainly a living principle." His belief was founded on the following observations: (1) That dentine could react; as the crown wore down new dentine was deposited on the roof of the pulp cavity. (2) It contained a large percentage of "animal matter." (3) If a growing animal were fed on madder, the earthy matter of dentine then in the course of being deposited combined with the madder circulating in the blood; dead bone did not become stained thus. He inferred that the vitality—or to use our modern terminology, the metabolism—of dentine was low, because the red stain was permanent. In bone the stain was not permanent; in time the madder-coloured parts were absorbed. We see, then, that Hunter had realised that a part could live outside the circulation; it could live when nourished only by the lymph which exuded from the blood-vessels. Having reached that belief early in his career, it was easy for him at a later stage to realise that a graft of any kind, when transplanted, could maintain life from the juices of the part long enough to await the period of vascularisation. Hunter, it must be remembered, had proved that the umbilical artery was still alive three days after the placenta had been shed.[3]

He laid down the conditions for successful transplantation. The first is that the tooth-socket must be fresh, healthy, and, above all, free from disease. Grafts from young animals, or from those low in the scale of life were more vigorous than those taken from adult animals or from those high in the scale.

"For the living principle in young animals and those of simple construction ... ..continues longer in a part separated from their bodies and even would appear to be generated in it for some time, while a part separated from an older or more perfect animal dies sooner." The operation of transplantation had to be done "in such a way that she (Nature) can assist."

Observations on Spur Transplantation.

I will not stop now to describe the preparation which shows a human tooth engrafted by Hunter when it was alive in the comb of a cock. There is a vascular union between the comb and the tooth, but there is no proof that the tooth actually lived in its new situation, although Hunter believed it to have lived. I want to pass on to his spur transplantations. A spur, as you know, has a core of solid bone—an outgrowth from the tarso-metatarsus of the fowl's leg. Experiments on spurs are experiments on bone. Hunter wished to discover if one sex was superior to the other in reparative power.

"I took the spur from the leg of a young cock and placed it in the situation of the spur in the leg of a hen chicken; it took root; the chicken grew to a hen, but at first no spur grew. This experiment I repeated several times in the same summer with the same effects, which led me to conceive that the spur of a cock would not grow on a hen, and they were, therefore, to be considered as having distinct powers. In order to ascertain this, I took the spurs of hen chickens and placed them on the legs of young cocks. I found that those which took root grew nearly as fast and to as large a size as the natural spur on the other leg."

How obtuse John Hunter can be at times! He knew that the testes could by a "species of sympathy" completely alter the form of an animal's body, and yet, when he came to draw the lesson which those classical experiments of his have to teach us, he lamely says:—

"The spurs of a cock were found to possess powers beyond those of a hen, while at the same time the one animal as a whole has more power than the other; yet when I apply these principles to the power of cure of local diseases of the two sexes in the human race I can hardly say I have observed any difference."[4]

Those who have noted the results obtained by Hunter in the transplantation of spurs and have marked the changes which occur in acromegaly see in them the effects produced by substances which are set free by the testicle and by the pituitary body. There are substances or hormones which can sensitise—can activate—bone, and could therefore, if our knowledge were more complete, be brought to bear as stimulants of bone-grafts. In reality those spur experiments of Hunter are amongst the most instructive in the whole range of the literature on bone-grafting.

[3] Ibid., iii., 159.
[4] Ibid. iii., 274.

WORK ON BONE-GRAFTING IN AMERICA.

Hunter's researches take us back to the eighteenth century; we are now to glance at the practice of bone-grafting as it is being carried out by surgeons in America in this the second decade of the twentieth century. We shall commence with a neatly conceived series of experiments carried out by Dr. W. E. Gallie, of Toronto, in 1914.[5] He reflected the periosteum from a small segment of the outer border of the radius of a dog; with a saw he separated a small wedge of the bone; having separated the wedge he immediately replaced it in the shaft and stitched the periosteum over it. He performed this operation on three dogs, killing them so as to obtain bone-grafts at three stages of implantation, at the end of the first, the second, and the third weeks. The result of examining these grafts was to lead him to the conclusion, as similar experiments had led many men before him, that a bone-graft dies and merely serves as a scaffolding which is invaded by neighbouring living bone. He performed three other modified wedge experiments. In one he boiled and killed the wedge-graft before replacing it; in another he replaced the wedge taken from a dog's radius by one taken from a cat's; in a third he surrounded one side of the cut surfaces of the wedge-graft with tinfoil. The results yielded by the second series of experiments confirmed the conclusion he drew from the first series—viz., that a bone-graft merely supplies a favourable nidus for the invasion of the host-bone. We could cite numerous references to experiments which have led their authors to similar conclusions.

Yet, conclusive as such experiments seem to be, there lies somewhere in them a fallacy. They are at the best negative experiments, yielding negative evidence. If Macewen's tibial grafts had merely served as scaffolding for the living bone of the distant extremities of that Glasgow boy's humerus, could the shaft of the bone have been reproduced in the short time which was taken? Albee has published excellent radiograms of a fibula which was accidentally fractured soon after being transplanted to replace a necrosed tibia. The fracture occurred near the middle of the shaft, far distant from the implanted extremity at which an invasion of tibial osteoblasts would take place. At the site of the fracture a healing process appeared within four weeks of the date of transplantation; a callus was formed by the graft, which we therefore must suppose to have lived throughout its whole extent. We have other proofs in the behaviour of transplanted fibulæ; their appearance, as revealed by X rays, although they show thickening to occur first at the implanted extremities, supports the idea that grafts can retain living osteoblasts in their whole extent. From what we know of the anatomy and physiology of bone we should marvel if its cells, when suitably transplanted, did fail to live and grow. The evidence as it now stands leads one to suppose that in every fragment of bone successfully grafted there is at least one colony of osteoblasts which remains alive and serves as a centre of regeneration.

LIVING BONE-GRAFTS AS INTERNAL SPLINTS.

In 1911 Dr. Fred. H. Albee,[6] professor of orthopædic surgery in New York Post-Graduate Medical School, brought in a new practice—that of employing living bone-grafts as internal splints. To fashion splint-grafts of the exact shape and size needed for such operations, and to obtain them with a minimum of labour, he introduced from the cabinet-maker's workshop to the operating theatre motor-driven cutting machines of the latest design. With a twin circular saw he found it possible to cut from the shaft of a tibia miniature planks of living bone. The slices or "planks" of bone were cut so as to retain periosteum on one surface and a layer of medullary lining on the other. The first use he made of such grafts was to immobilise the damaged region of the spine in cases of Pott's disease. At the site of an

[5] Journ. Amer. Orthop. Surg., 1914, xii., 201.
[6] Bone-Graft Surgery, New York, 1915.

incipient kyphosis he exposed the spinous processes, split them, and laid the tibial graft along their forked ends. Such grafts held and immobilised the vertebræ of the diseased region. He applied the same practice to the treatment of fractures of long bones. He introduced all the devices of an expert carpenter—inlaying, wedging, dovetailing, dowelling, and tonguing—to secure a perfect co-aptation of graft to the host fragments. The graft was made to fix exactly the inlay bed prepared for it, and was bound in place by tendon. Having to serve as splints such grafts were given considerable length, so that they might take an extensive grip of the broken ends of a shaft. Albee regards such inset grafts as stimulating bone production at the site of fracture. With Hey Groves, he believes that live grafts are much less likely to favour infective processes than metallic plates and screws. To prevent movement and strain between the graft and host fragments, the broken limb is retained on a splint until union of the fracture is well secured.

Albee has applied bone-grafting operations to fractures and deformities of all parts of the body. He employs an inlaid bone-graft to fix together the upper and lower fragments of a broken knee-cap. He seeks to correct the deformity of club-foot by setting a wedge, taken from the cuboid on the outer side, within an incision made into the scaphoid on the inner side of the foot. The employment of bone-grafts in the treatment of fractures and of deformities is now in an experimental stage; its permanent position in surgery has still to be determined.

EXAMPLES OF BONE TRANSPLANTATION.

By far the most instructive examples of bone-transplantation are those in which the fibula has been used to replace the necrosed shaft of the tibia. The particular case I am to call your attention to is the first on which Mr. C. J. Bond, of Leicester, operated (May, 1905), and represents, therefore, the earliest operation of this kind in our country.[7] In January, 1903, Professor Huntingdon, of the University of California, carried out the first successful operation of this kind, publishing an account of it in 1905.[8] A comparison of dates shows us that the same problem had presented itself to two men situated on opposites of the earth and that both had adopted independently the same solution.

Mr. Bond's first case was a girl, aged 5, in whom the whole shaft of the right tibia had been destroyed by osteomyelitis 11 months previously to the date of operation. Skiagrams show that the upper tibial epiphysis, although it had survived, had not quite escaped the effects of disease. The lower epiphysis also remained, apparently healthy. In his first operation (May, 1905) Mr. Bond cut the neck of the right fibula and fixed the upper end of the shaft into the epiphysis of the tibia. The lower end of the fibula could not then be transferred to the lower tibial epiphysis because there was still present in it a small area of diseased bone. Two years later, in 1907, it had so far recovered that Mr. Bond was able to separate the shaft from the external malleolus and implant it in the adjoining tibial epiphysis. The shaft of the fibula now occupied a position between the upper and lower tibial epiphyses. A skiagram taken in 1909, four years after the upper end of the fibula had been transplanted and two years after the shifting of the lower end, shows that the graft had assumed the shape and thickness of the tibia of the left or healthy leg, but was much shorter than the normal bone. That shortening is clearly due to a defect in the upper diaphyseal growth disc; although the upper end of the fibular graft had widened by then and formed a connexion with the whole width of the old tibial epiphysis, there was no trace of the clear line which should mark the site of the growth disc of the new shaft. Mr. Bond noted that the thickening—the "tibialisation"—of the new shaft began at the extremities implanted in the epiphyseal ends of the old tibia. He suspects that there was an invasion of the extremities of the new shaft by swarms of osteoblasts derived from the tibial epiphyses. However that may be, the remarkable fact remains that in the course of less than four years the slender and peculiar shaft of the fibula was, when placed between the stresses which fall on the knee- and ankle-joints, transformed into a tibia. At the age of 13 the girl could walk and run, and "showed no noticeable limp."

[7] On the Late Results of Three Cases of Transplantation of the Fibula. British Journ. of Surg., 1914, i., 610.
[8] Annals of Surg., 1905, xli., 249.

In 1908 Mr. Bond performed a similar operation on a boy of 11. The lower tibial epiphysis was so porous that the lower end of the transplanted fibula worked its way almost into the ankle-joint. Five years later, when the boy was 16 and able to walk three miles to school, a skiagram of the new tibia showed that a less successful result had been obtained than in the first case. The proximal part of the new shaft exhibited the greatest growth response, yet at its upper end it had not effected a union with more than half the width of the old tibial epiphysis. The middle part of the fibular shaft remained slender when compared with the shaft of the companion bone of the healthy leg. There can be little doubt as to the cause of this comparative failure. It lay in the condition of the lower tibial epiphysis. It was so porous that, when the fibula was implanted in it, it sank through almost to the ankle-joint. The lower tibial epiphysis could offer neither a firm base of support, nor an osteogenetic stimulus to the fibular graft.

In 1908, soon after transplantation was effected, we can see from the skiagrams taken of this lad's leg that the lower end of the transplanted fibula had made an early effort to secure a more firm basis of support at the ankle. A tongue of ossific matter is seen to be formed in the direction of the external malleolus, from which the fibula had been detached. Five years later we see from the skiagrams that the fibula had shed the lower part of the original shaft which was implanted in the tibial epiphysis and had acquired a new and direct prolongation to the ancient support—the external malleolus. It is when we study cases like those of Mr. Bond that we see Hunter was not so wide of the mark when he ascribed a form of "consciousness" to living bony matter.

Mr. Bond's first case also gives us another instance of "osteogenetic adaptability." In that case—a girl of 5—the head and growth disc of the fibular shaft (upper epiphyseal line) were left attached to the outer tuberosity of the tibia. From the disc was produced a piece of shaft several inches in length. The growing end sought out and formed a union with the upper part of the new tibial shaft and thus served as a buttress to support the upper extremity of the tibia upon the shaft. Mr. Bond rightly supposes that there exists an attraction, or "tropism," between opposed fractured bony surfaces which are undergoing repair or growth; at least, one has to postulate that osteoblasts are endowed with a power of that kind. We shall inquire more closely into the endowments of osteoblasts in my next lecture.

SUMMARY.

If we sum up in the light of our present knowledge the conditions which determine the successful grafting of bones or of bone-fragment, we must place first—asepsis. Grafts answer best which are taken from the patient's own body; the closer the genetic relationship of the graft-host, the better is the graft likely to answer. The graft-host should be young, and those grafts do best which contain all three elements of bone—bone, periosteum, and medullary tissue. The graft-bed must be free from blood-clot. Washing in normal saline solution damages the vitality of a graft. A graft must be placed so that contact is effected with adjacent fragments; the contact must be firm and so designed that the graft becomes early subjected to the mechanical stresses and strains of the part.

LIVERPOOL UNIVERSITY.—At an examination held on Jan. 16th the Diploma in Public Health was granted to Dr. George W. Procter.

DISPENSARY DOCTORS' SALARIES.—Considerable interest is being taken in the matter of dispensary doctors' salaries. Correspondence and even editorial notice is occurring in the lay press. It is frequently noted that those boards of guardians who are almost eager to grant increases of salary to their workhouse officials almost invariably show the greatest reluctance to do anything for their medical officers. It has been pointed out that during the year ending Sept. 30th, 1916, the salaries and rations of Poor-law officers were increased by £10,270, while the doctors were perforce content with £911 increase during the year ending March, 1917. As there are 812 dispensary doctors in Ireland, the increase averaged £1 2*s.* 6*d.* per head per annum. There are signs that the public are showing an interest in the question, and nothing will do more good than a thorough ventilation of the matter.

PAINFUL NEURITIS RESULTING FROM WOUNDS OF WAR:

TREATMENT BY INTERTRUNCULAR ALCOHOLISATION OF THE NERVES.

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THE results obtained during the last two years by the method described below are sufficiently conclusive to enable a study of them to be published.*

Alcoholisation of the Nerves in Cases of Painful Neuritis.

One does not know how it is that certain war injuries of the nerve trunks are painful, whereas identically similar cases, caused under exactly the same conditions and presenting the same macroscopic and histological features, are quite painless. Anyhow, we are concerned with local neuritis and not with ascending neuritis.[4] Certain nerve trunks react more easily than others to painful sensations; such are the median, the sciatic, more rarely the ulnar, the crural, and exceptionally the radial. M. Pierre Marie and M. Bénisty[5] have particularly insisted on the paroxysmal neuralgias of the median nerve. M. Pitres,[6] myself, M. Leri,[7] and others have pointed out the persisting pains of the sciatic nerve when injured by gunshot wounds.

Naturally, we refer only to those chronic pains resisting all treatment; it is the rule, happily, that the greater number of painful reactions following on injuries improve spontaneously within two or three months, and disappear completely later on. But, in certain cases, the pains persist, may grow worse, become permanent, may go on to a paroxysmal condition, depriving the patient of all sleep, and even drive him to thoughts of suicide.

Whether the upper or lower limb be affected the patient keeps the painful limb covered with wet linen, and keeps the same constantly damp and remains as immobile as possible. From various points of view, as we pointed out,[8] these neuralgias of the median are very similar to those of the trigeminal. They cause the same dread of external noises (cries, door-closing, breaking of things, &c.), the same sensory hyperæsthesia, the same paroxysms of pain evoked by a light cutaneous sensation; the patients dread walking, some even insist on wearing rubber soles so as to avoid all jarring. Lastly, as in cases of trigeminal neuralgia, a convulsive local trembling often accompanies acute attacks in the form of real tics or rather painful spasms.

In four cases observed by us morphia was employed in the form of subcutaneous injections in daily doses varying from 3 to 70 cg.

Medically we tried treatment by hot air, steam baths, radiant light baths, the constriction of the limb at its junction with the trunk, local subcutaneous gaseous injections, the injection of artificial serum, galvanic baths, &c. Only bandaging with damp compresses, especially with infusions of poppy heads, gave a certain amount of relief, but of a temporary nature.†

Surgically we have had recourse to freeing the nerve or to the distension of the nerve sheath either by injection of a certain amount of air or cocainised serum. The sedative effects were but partial and transitory.

We even tried more than this—in the case of one of these neuralgias of the median and ulnar—the patient having suicidal tendencies owing to the severity of the pain and begging to have his arm amputated.

With the aid of M. Imbert, our colleague, we exposed on the internal surface of the arm the two nerves (median and ulnar), and above the seat of the lesion, which was apparently trifling consisting of a simple hypertrophy with some thickening of the trunk and showing no special histological features on examination (microscopic), we completely severed with a bistoury the two nerve trunks as high as possible near the armpit, 5 to 6 cm. above the seat of the scar. Immediately afterwards we reunited the respective ends of each by a suture, hoping to prevent permanent paralysis. Now in this case the patient clearly improved, but not absolutely. He is able, since the operation performed some six months ago, to do without the wet compresses and to walk; he can now sleep, the pains are bearable, so he informs us, compared with his previous attacks. Nevertheless, we cannot yet class this as a complete cure.

It is in such cases of neuralgia that we employed the local treatment of alcoholisation of the nerves.

It is but right to remember that M. Pitres and M. Vaillard more than 25 years ago studied the effects of alcohol when placed in direct contact with nerve trunks, and that they saw that this chemical agent caused slight traumatic neuritis which but partially interrupted the conductivity of the nerves and led even to Wallerian degeneration, giving rise only to sensory symptoms of anæsthesia or hyperæsthesia without motor paralysis.[9] At a later date, with M. Verger, M. Pitres had tried this method in facial neuralgia, called "functional," but the injections had only been performed superficially on the level of the gums, and the results obtained were only transitory.

Up to the present we have treated by intraneural injection of alcohol 21 cases of painful neuralgia following on gunshot wounds of nerves.

Median, 6 cases (wounds on internal surface of arm). Recovery.
Median and ulnar, 3 cases (wounds on internal surface of arm). Recovery.
Sciatic, 5 cases (wounds of middle third of thigh or in the subpopliteal region). Recovery.
Brachial plexus, 5 cases (median and ulnar, 2 cases; median, ulnar, and musculo-spiral, 2 cases; musculo-cutaneous, median, and ulnar, 1 case). Recovery.
Neuromata, resulting from amputation, 2 cases (which had remained very painful notwithstanding two consecutive resecting operations after amputation). Recovery.

To these observations are to be added those of Drs. Grinda, Godlewski, Benoit, Morel, and others, and especially those of Professor Pitres,[10] which brings the total number of cases so treated and under observation up to 34.

Selection of cases.—Intratruncular alcoholisation concerns only a very special group of cases. The pain should not be diffused over one or several segments of the limb, but localised to the tributary peripheral nervous territory of the injured nerve. A check would be registered if recourse was had to truncular alcoholisation of the median or the ulnar, for example, when after a wound of the internal surface of the arm the seat of the pain is not only in the region of these two wounded nerves, but also generally in the articulations of the wrist and of the whole of the fingers.

Technique of Alcoholisation of Nerve Trunks Above Lesion.

The following is the technique of the intraneural injection of alcohol such as we have always carried out with our assistants, Dr. Imbert and Dr. Dambrin.

The technique is simple. Under a general anæsthetic, when the pains are too severe to attempt local anæsthesia, the nerve wound is exposed. In certain patients, however, our colleague, Dr. Dambrin, finds that local anæsthesia suffices. The nerve is freed and isolated from the adjacent tissue. In some cases there exists only hypertrophy of the nerve trunk without any serious visible wound; and microscopic examination of the damaged segment, which was performed in our early cases of alcoholisation, showed no special histological characteristics. Following on this first stage of exposure of the injury the upper adjacent segment is uncovered, and in the middle of apparently healthy nerve tissue, about 3 to 4 cm. above the seat of the wound, a fine Pravaz needle is introduced and, with the aid of a glass syringe, there is injected about 1 to 2 c.cm. of sterilised alcohol 60°, or even 80° should the neuralgia be of long standing.

The sterilisation of the alcoholic solution must be done with care, in closed bulbs, so that the alcohol retains its strength. Moreover, alcohol at 60° is already bactericidal. When the injection has been properly given it should cause a local swelling, and the nerve trunk assumes a characteristic white mother-of-pearl appearance. With a little practice, in one operation and with 1 c.cm., the whole length of the main trunk is injected. Beginners can use the solution more freely and inject in two or three different places in the trunk, especially when the sciatic nerve is involved, so as to ensure

* Several of my colleagues have written to me confirming the excellent results obtained by this method. Professor Pitres and his collaborator, M. Marchand, in an article, Intraneural Injection of Alcohol in the Treatment of Wounds (Presse Médicale, Sept. 6th, 1917), say: "The efficacy of injections of alcohol in the neurological centres can already be considered as certain when applied according to the method recommended by M. Sicard in the treatment of wound pains following on wounds caused by war projectiles in certain peripheral nerves."

† M. Souques recommends direct bandaging with indiarubber (Soc. de Neur., October, 1915), and MM. Cestan and P. Decoups recommend radio-therapeutic treatment (Presse Médicale, Nov. 25th, 1915).

the injection of nearly all the nerve fasciculi. We have proved that alcohol of lower degree is insufficient to allay the pain.

Conditions necessary to ensure success.—A. It is essential to make the injection above the nerve lesion, about 3 to 4 cm. above the site of the nerve injury, or even at a higher level still to be certain of reaching all the collateral branches of nerves which take their origin in the adjacent region, and which can equally, by their being involved in the wound, be the starting-point of irritating pains.

B. All the nerve trunks supplying the painful region must be injected.

C. In cases of previous surgical intervention performed with a view of freeing the nerve or of its partial suture, it is necessary, when alcoholising, to inject not only above the scar of the wound but to do so above the superior limit of the previous surgical operation.

Criticism of the Method.

To the method the following objections might be made.

Does not an injection of alcohol, fully justifiable in cases of neuralgia accompanied by severe motor paralysis, risk provoking an increase in motor troubles if the neuralgia is only accompanied by paresis and might it not prevent the ultimate restoration of motor functions?

The answer is that alcoholisation is to be used only in cases of paroxysmal pains—pains so violent and so continuous that the patient begs that an operation be performed and even asks for amputation of the limb, so much so that two of my colleagues and myself did not hesitate, before applying this method, to divide the nerves involved. Besides, as we have previously pointed out in our former experiences, following on those of M. Pitres performed on dogs in the laboratory of our chief, M. Brissaud, one can be certain that alcohol, especially that of 70°, interrupts but for a time (about 6 to 10 months) the motor conductivity.

Does not clinical experience show us that the injection of alcohol practised on the facial nerve in the course of the classical facial hemispasm (trigeminal neuralgia) provokes paralysis of the nerve during an average time of eight to ten months? Motor conductivity reappears afterwards.

CASE 1.—Wounded August 30th, 1914, bullet in the left axilla. Perforating wound. Three days after the wound pains in the left hand, which rapidly became paroxysmal. The axillary nerves were freed in Germany.

Dec. 11th, 1914: No improvement. Repatriated as unfit for further service in April, 1915. The pain was strictly limited to the area supplied by the median nerve; point of maximum intensity in palm. In June, 1915, the pains continued acute and patient called for amputation of arm.

On June 22nd, 1915, injection of 1 c.cm. of 60° alcohol in trunk of median at level of anterior axilla 3 cm. above wound; general anæsthetic. The following day there was absolute relief of the pain, and three days after the patient was able to move his fingers. Prehensile movements and digital opposition became possible.

In March, 1916, the recovery of the motor powers was nearly complete and the cure of the neuralgia remained permanent.

CASE 2.—Wounded on Sept. 20th, 1915. Perforating bullet wound upper third of left arm. Immediately afterwards paralysis of median and ulnar set in. Three weeks later the pains became rapidly worse and paroxysms almost continuous. Morphia was a necessity.

At the end of October, 1915, an operation was performed. The median and ulnar nerves were freed and no serious macroscopic lesion was found. No improvement after operation; the pains continued as severe as before. Dose of morphia increased.

On Feb. 20th, 1916, the patient was operated on again. The incision was made above the old one. The median and ulnar were laid bare. An injection was made in each of them of 1 c.cm. of 70° alcohol. Since then the pains have disappeared. The use of morphia has been completely abandoned. The median and ulnar have regained certain amount of voluntary flexion of the fingers. It is likely that the old immobility was due, not to motor paralysis, but to the intensity of the pain. It had not been possible to investigate electrical reactions owing to the intense spasms arising at the slightest touch.

In May, 1916, the cure was complete.

Experiments which we are now carrying out with Professor Jourdan have already shown how the axis cylinders react to alcoholisation. This reaction has been studied by the Bielschowski method, and is quite distinct from the Wallerian degeneration already remarked on. These axis cylinders are, according to the strength of the alcoholic solution employed, either simply hypertrophied or split into fragments, and, progressively, in the course of a few weeks they recover their dimensions and normal aspect, notwithstanding hypertrophy of the interfascicular connective tissue.

This histological study throws a good deal of light on the essentially transitory effect of the injection of alcohol on the myelin sheath and axis cylinders. These histological facts agree completely with the clinical and electrical results. Electrical examination shows that a reaction of degeneration which can be complete after an injection of alcohol 70° in a mixed nerve is a temporary phenomenon, and that the injected nerve, with the muscles it supplies, regain little by little, in a period which varies from four to eight months, their normal electrical reactions, becoming quite normal, as my colleague Garstand and I have been able to verify on many occasions.

Paradoxical Motor Recuperation.

Some of our cases treated by alcoholic injections have shown unexpectedly favourable results. The alcohol injected in the nerve trunk should theoretically paralyse for a certain time both the sensory and motor fibres. But, and it is a curious fact, two of our cases, less affected in their motor powers and cured of their pains after alcoholism, have not only shown no trace of paralysis, no motor trouble, but have even regained a few movements in the zone supplied by the injected nerves. This occurred in cases of median neuralgia, neuralgia of the brachial plexus, and in cases of sciatica. One of Dr. Grinda's patients, and also one of Dr. Pitres's, showed this paradoxical motor improvement.

It is very difficult to interpret these results so happily paradoxical. It is just possible that the injection may have, by chance, affected a more considerable number of sensory than motor fasciculi, or that the sensory fibres have a greater affinity for alcohol than the motor fibres, or simply that the excess of pain may have provoked inhibition of the motor power, and which disappears with the cessation of the pain.‡

Favourable Results of the Treatment.

[Here were given notes of cases quoted from the reports of Professor Pitres and Dr. Grinda. "After all," adds M. Pitres, "9 of our patients, suffering from very violent neuralgia of the median (7 cases) or of the sciatic (2 cases) ceased to suffer immediately after injections of 60° alcohol into the nerve trunks above the lesion." Favourable results have also been obtained by Dr. Godlewski, Surgeon-Major, stationed at Orange.]

I do not wish to add to this list by other observations quite similar, either noted by my colleagues or by myself. Allow me, however, to add that my earliest cases of alcoholisation date back to April, 1915. On 43 cases of which I have details, there has been non-success in one case only, that of an officer. And in this case the injection was made on a level with the wound and not above the spot of a previous operation scar.

Our patients who have been injected have all remained cured and motor power has reappeared nearly entirely in the nerves treated whenever the gunshot wounds were not too deeply situated.

We believe that these results, remarkably favourable, warrant us in recommending the alcoholisation of the trunk above the wound in all refractory cases of painful nerve affections (neuritis) caused by gunshot wounds and showing no tendency to spontaneous amelioration and resistant to the classical medical methods at present in vogue.

References.—1. Revue Neurologique de Guerre. Cases treated in the Military Neurological Centres. Edited under the direction of Dr. Meige. Masson and Co., Paris. November, December, 1915. 2. Sicard and Tanon: The Risks of Injection of Alcohol into the Nerve Trunk in Cases of Common Sciatic Neuralgia. Consecutive Motor Paralysis. Société de Neurologie, 1907. 3. Brissaud, Sicard, and Tanon: Local Alcoholisation of Nerve Trunks. Revue Neurologique, July 30th, 1906; also Soc. Méd. des Hôp., July 20th, 1906. 4. Sicard: Treatise on Ascending Neuritis. Rennes Congress, 1905. 5. Pierre Marie et Bénisty: Painful Form of Wounds of the Median Nerve. Presse Médicale, March 18th, 1915. 6. Pitres: Monthly Reports of the Neurological Formations of the Fifteenth Region. Bordeaux. 7. Leri: Neuralgia of the Sciatic Nerve. Bulletin Soc. Méd. des Hôp., 1916. 8. Sicard: Painful Neuritis in War Wounds. Soc. Méd. des Hôp., July 2nd, 1915. 9. Pitres and Vaillard: The Action of Alcohol on Nerve Trunks. Soc. de Biologie, April 9th and May 14th, 1887. 10. Pitres: Monthly Reports on the Neurological Service of the Eighteenth Region. Bordeaux, December, 1915.

‡ MM. Meige and Ath, Bénisty (Presse Médicale, April 6th, 1916), and M. Leriche (ibid., May, 1916) have advanced the theory that these painful reactions are caused under the influence of an injury of the sympathetic system, more especially by those which accompany the great vessels. It is possible to reconcile this very suggestive hypothesis with our method of alcoholisation. It is possible that the alcohol provokes a degeneration of the sympathetic fibres included in the nerve trunk or which accompany the central arterial trunk.

SOME REMARKS ON INTUSSUSCEPTION.

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THE frequent performance of abdominal operations during the past few years has enabled us considerably to increase our knowledge of the more rare conditions which threaten life from that section of the body. This applies particularly to the acute diseases which are curable so often if the patient will permit early operation. Intussusception gives one of the most striking examples of the truth of this. We have only to examine the records of operation for acute "reducible" intussusception and compare them with those of operation when such an intussusception is "irreducible" to appreciate this most fully. According to one surgeon,[1] irreducibility causes the mortality to rise from 50 to 90 or even 100 per cent. Early operation is the rule in most hospitals and the mortality is proportionately reduced. At St. Thomas's Hospital during the years 1908–13 inclusive—we learn from a recent paper by Mr. Stewart Rouquette[2]—operation was performed in 125 instances by various members of the staff, and of these 88 recovered. The importance of the above statement is more clearly shown in a table given by him.

—	Less than 1 day.	1 day.	2 days.	3 days.	4 days.	5 days.	6 days.	Not counted.
Recovered	49	26	6	3	0	0	?1	3
Died ...	8	14	5	5	3	1	0	1

Classification.

It is quite evident from the account of the case given below that methods other than operative would have failed to put things right, and it adds weight to the many arguments against trusting to any of the numerous devices other than operative which have been used and have found advocates in the past. This case also makes it necessary to revise our classification of the varieties of intussusception. The older division into two kinds by Leichtenstern must be expanded. He wrote of (1) invagination of the death-struggle, an unimportant cadaveric incident; (2) inflammatory invagination, taking place without exception from above downwards, so that a portion of intestine is invaginated into another lying below it. In a series of 593 cases he met with only 8 which he considered were of the inflammatory ascending variety; in these he thought that the normal peristalsis had been arrested by a serious affection of the intestine, usually peritonitis with paralysis of a part of the gut.

The possibility of the envelopment of bowel below by bowel descending from above does not appear to have suggested itself to him. That it does take place is now proven, and it is unlikely that such an occurrence should be limited to a region where it requires many favourable conditions to permit of its occurrence.

Probably the classification which should receive acceptance at the present day is the following:—

Intussusception.—A, Acute. B, Chronic.

A, Acute. 1. Simple, which may be single or multiple. Invagination of the death-struggle. Inflammatory invagination, descending, enveloped; descending, enveloping, ? ascending or retrograde. 2. Compound, such as the case recorded by Mr. D'Arcy Power,[3] where the primary invagination was enveloped in a second passing in the reverse direction—that is to say, of the retrograde variety, and this retrograde intussusception was itself complicated by a third intussusception, also of the retrograde kind. The primary and the first retrograde invagination had occurred during life. 3. Complicated, those in which the intussusception has been caused by a new growth.

B, Chronic. Usually enterocæcal or enterocolic. In children a tumour of sausage shape can be found in 50 per cent. The symptoms are mainly those of intermitting obstruction.

[1] H. M. Rigby: THE LANCET, 1903, i., 364.
[2] S. Rouquette: St. Thomas's Hospital Reports, New Series, vol. xliii., 1916.
[3] D'Arcy Power: Trans. Path. Soc. Lond., 1899, p. 121.

A Case of Acute Descending and Enveloping Intussusception.

A female child, aged 4 months, was admitted to the Lilian Ward of St. Thomas's Hospital under the care of Dr. Hector Mackenzie on Jan. 17th, 1917. She was a well-developed and well-nourished child, born at the full term and breast-fed. Her health had been quite satisfactory until an attack of vomiting on the morning of her admission to the hospital. Her mother could not account for this attack. Blood was passed in a motion about midday, when the child appeared ill and cried at intervals. She passed blood again before she was brought up for treatment, and she was then looking pale and pinched. The abdomen was not rigid and a definite movable tumour was felt a little to the left of the umbilicus. This tumour could not be found immediately before the anæsthetic was given at the time of the operation—about 12 hours after the commencement of symptoms—because palpation at once induced spasm in the abdominal muscles. Pulse, 116; temperature, 98·4° F. When seen before the anæsthetic was given she was showing more signs of shock, and this spasm, with crying, came on very readily when she was touched. Under anæsthesia a sausage-shaped tumour was easily located under the liver and the "signe de Dance" was unusually evident.

The abdomen was opened through the right rectus muscle. A finger introduced through the wound brought the tumour more to the upper part of the wound, but manipulation did not appear to diminish its size. When it came into view, more than one present noticed that the external layer was composed of small intestine, but the explanation of the unusually high position of an enteric intussusception was only disclosed when the tumour had been brought outside. The intussusceptum was then seen to be leaving the tumour in the direction of the transverse colon, and not entering it from above, whilst the small intestine extended downwards as the outer layer without any abrupt alteration of the outline. The length of the tumour was about 3½ in. to 4 in., and it was reduced by pressure and traction on the small gut until the contained structures had been expelled. These included the ascending and part of the transverse colon, the cæcum, and appendix. As the layers gradually came apart some extravasated blood escaped, and there was patchy extravasation of blood in the peritoneum and walls of the parts which had constituted the intussusceptum, especially towards the caput cæcum, which was the last point to appear. The parts were washed with saline solution and replaced in the abdomen, the incision being closed. The cæcum appeared smaller than usual, and the ileo-cæcal mesentery unusually long and movable. The child made a good recovery.

Chronic Intussusception.

That the diagnosis of chronic intussusception is sometimes difficult is illustrated by the following case. In the first instance, there was only a history of "noises in the stomach," for which relief was sought, and there had been no complaint of pain. The development of peristalsis of small intestine when the abdomen was manipulated gave a very striking example of the clinical value of this method of eliciting a latent symptom of obstruction, as well as the localisation of the site of it. Examination of the ileum where the intestine was most dilated, beyond the surface groove mentioned in the account, which was so ill-defined, gave little help. Moreover, the swelling within had no definition, being quite soft throughout. When opened up the mucous membrane had been apparently pressed towards a central point, much as a concertina when closed. The prognosis in these chronic cases depends very much on whether they are subjected to operation when acute symptoms are present or not.

A. M., a boy of 15, was admitted to St. Thomas's Hospital under the care of Dr. Hector Mackenzie on May 10th, 1917. During the beginning of April he noticed noises in his abdomen, especially after meals, and they became so annoying to the household that he was sent to see a medical man about them. He did not feel sick, he had no pain, and the bowels acted regularly. He had had flatulence ever since, and had noticed tenderness in the right side of the abdomen. The general condition of the boy was good. Examination of the abdomen showed some distension with an extremely tympanitic note all over it. There was some evident swelling in the right iliac fossa. On the 12th it was reported that an hour and a half after lunch much visible peristalsis was present with borborygmi. A swelling was seen to form in the upper and inner part of the right iliac fossa; this swelling moved downwards and to the right, and then suddenly disappeared. This swelling could be brought up by manipulation, and there was a marked "splashing" sound produced on bimanual palpation to the right of the mid-line below the level of the umbilicus. The report of the X ray examination was that there was no evidence of organic obstruction.

A diagnosis of chronic obstruction of the lower end of the small intestine caused by some mechanical change near the ileo-cæcal valve was made, and operation was performed on May 29th. An oblique incision was made over the right iliac fossa and the rectus muscle displaced inwards. The posterior layer of the sheath and peritoneum were then incised to an extent sufficient to expose the ileo-cæcal angle. The greatly distended and hypertrophied ileum presented itself, and it was affected for a long distance upwards from the ileo-cæcal valve. Extending for about 3 inches above the valve the lumen of the bowel was occupied by a soft mass which appeared without special character or attachment—it felt like soft, hypertrophied mucous membrane, and the possibility of intussusception was considered. At one point of the ante-mesenteric surface there was a transverse groove, not well marked or more than 1½ inches in length. Otherwise the peritoneal covering appeared normal. There were some adhesions about the cæcum. The ileo-cæcal angle (including cæcum and about 7 inches of the ileum), was mobilised, withdrawn from the abdomen, and resected, the appendix, which contained a concretion at the tip, being also removed. The ends were closed and a lateral anastomosis done between the ileum and ascending colon. The peritoneum was sutured in position in the iliac fossa, and the wound was closed.

The parts removed showed the wall of the ileum to be nearly ¼ inch in thickness from hypertrophy. Water from a tap could not be forced along the lumen of the gut. When a longitudinal incision was made the condition was shown as a long-standing intussusception, about

6 inches of the ileum being affected, and so closely adherent that the parts had to be separated with scissors. After this the length of the bowel was easily extended to more than 12 inches. The mucous membrane was normal. The boy made an uninterrupted recovery, and left the hospital on June 11th.

The most interesting point of this case of chronic intussusception is that although the lumen was so contracted practically the only symptom the boy exhibited was the noise produced by the gurgling of the liquid and gaseous contents of the dilated small intestine through the narrow channel of the intussusception. There was no pain, no vomiting, and no constipation. Pain, according to Rafinesque,[4] is a constant symptom of chronic intussusception, and no doubt it is so in those cases which are allowed to proceed to a fatal termination without surgical intervention. Vomiting is very rarely absent in the ileal and ileo-colic forms of chronic intussusception. In the ileal form, of which this was an example, it is usually intense and abundant. Constipation, which as a rule supervenes in acute intussusception, is the exception in the chronic forms. X ray examination was not helpful, but rather misleading, and we have found this to be the case in other instances of chronic obstruction of small intestine. We have seen the dilated small intestine charted out by expert radiographers as colon. The visible distension by gas of the small intestine above the intussusception which was so marked in this case is said by Rafinesque to be much rarer in chronic intussusception than in other forms of intestinal stricture. The succussion splash which was so marked in this case is referred to by Rafinesque with some scepticism, as observed by Dr. Black[5] many years ago. This clinical observer pointed out that a careful examination could detect no tumour or isolated swelling in any part, but when one hand was placed between the umbilicus and pubes and a repeated vibratory motion was suddenly communicated by the other to the abdominal walls and subjacent viscera in the right inguinal region distinct succussion was seen and heard.

THE VIBRATING SENSATION IN THE DIFFERENTIAL DIAGNOSIS OF AFFECTIONS OF THE SPINAL CORD AND PERIPHERAL NERVES.

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RECENTLY much attention has been directed to the differential diagnosis of lesions of the spinal cord and peripheral nerves occurring in military service, and especially to the diagnosis from functional conditions and malingering. In the differential diagnosis of such affections the vibrating sensation is occasionally of distinct service. In previous articles[1] I have drawn attention to the changes in the vibrating sensation in diseases of the nervous system, and have reviewed the result of other observers.

Value of Vibrating Sensation in Diagnosis.

In this note I wish to direct attention to the value of the vibrating sensation in the differential diagnosis of several affections, and in their diagnosis from hysteria, functional diseases, and malingering.

[The vibrating sensation may be tested by a large vibrating tuning-fork, the foot of which is placed on a subcutaneous bony prominence or bony surface, such as the malleoli, the inner surface of the tibia in the leg, the anterior superior iliac spine, the styloid process of the ulna at the wrist, the sternum, &c. I have found a tuning-fork which is supplied by Messrs. Woolley and Sons, Chemists, Victoria Bridge, Manchester, very useful. It is 7½ inches long and marked A1 440. An oval metal foot-piece is attached to the tuning-fork. A few control observations are desirable to see if the patient clearly recognises the sensation before a routine examination is made.]

Loss of the vibrating sensation is often one of the *earliest signs of sensory affection* in lesions of the spinal cord. The vibrating sensation is often lost *before other forms of sensation* are affected in cases of paraplegia or paresis of the legs due to compression of the cord from various causes and in a number of other cord affections. At a later date anæsthesia to tactile and painful sensation and to temperature may occur. (In certain affections, however, the vibrating sensation may be felt though other forms of sensation are affected.) In anterior poliomyelitis, acute and chronic, and in amyotrophic lateral sclerosis, and in other diseases strictly limited to the motor parts of the cord the vibrating sensation is felt quite well. In any cases of paraplegia or paraparesis loss of the vibrating sensation is a sign that the disease has extended outside the motor parts of the nervous system to the sensory parts. It may be the only sign of affection of the sensory parts, and may thus be of value in the differential diagnosis of a number of diseases. Hence the vibrating sensation is occasionally of distinct value in the diagnosis between acute anterior poliomyelitis and peripheral multiple neuritis. Loss of the vibrating sensation does not occur in acute *anterior* poliomyelitis, whilst the vibrating sensation is very often lost at a very early stage of multiple peripheral neuritis (from various causes) and before other forms of sensation are lost. Loss of the vibrating sensation at this stage would be, therefore, an important point in favour of peripheral neuritis in the differential diagnosis between these two affections. (But, of course, the diagnosis should not be based on this sign alone.)

In the differential diagnosis of organic paraplegia from hysteria, functional disease, and malingering I think the following point is of some importance. In any case of paralysis or paresis of the legs, if the vibrating sensation is *lost*, whilst other forms of sensation are *recognised*, and the patient persists in this statement in spite of suggestions to the contrary, malingering or hysteria is very improbable. In malingering or hysteria, if sensation is affected, the vibrating sensation and other forms of sensation will be usually *lost together*.

[In testing suspected functional cases it is well to test a part which is not affected first. If the legs are paralysed and anæsthetic and the arms not affected it is advisable to examine the arms first. The hand is touched with the finger (and other forms of sensation may be tested), and then the vibrating tuning-fork is placed on the styloid process of the ulna. The legs are then tested in the same way, touch first and then the vibrating sensation is tested and the patient asked if he feels the vibrating sensation when the foot of the vibrating tuning fork is placed on the internal malleoli or inner surface of the tibia.]

The vibrating sensation is lost in many cases of early tabes dorsalis. In the recognition of this disease at the *earliest* stage, when symptoms are very few, the loss of the vibrating sensation on the malleoli may be of value in the diagnosis as an additional symptom in favour of tabes.

Combined Postero-lateral Degeneration.

The vibrating sensation has been lost in cases of spinal diseases which have come under my observation that have probably been due to *combined postero-lateral* degeneration (or sclerosis) and lost at a very *early stage before other forms of sensation* have been lost. In these cases at first the chief symptoms have been slowly developing slight incoördination and slight paresis, Babinski reflexes, and loss of the vibrating sensation. Later other forms of sensation, cutaneous and muscular, have become affected, ankle clonus has developed, and other symptoms have followed. In the diagnosis of these cases at the *very early stage*, and especially in the diagnosis from functional conditions or malingering, the vibrating sensation is often of distinct service. As an early indication confirming suspicions of organic spinal disease the following case is an example.

A man who had been called up for military service consulted me early in 1917. He stated that he considered he would be unable to undertake any military training on account of a weakness or heaviness in his legs and slight unsteadiness in walking. On examination little could be detected. He could walk alone and no definite ataxia could be observed. The question of malingering or neurasthenia had to be carefully considered. I examined him again a little later. He complained of the same sensation of heaviness in the legs, and in walking he did appear a little unsteady. On careful examination no signs of cerebellar or cerebral disease or tabes could be detected, and the (?) *slight* weakness and (?) *slight* unsteadiness in walking could have been attributed to neurasthenia or functional disease or malingering, but for two signs. The knee-jerks were normal. No ankle clonus could be obtained, and the only definite signs indicating organic disease were loss of the vibrating sensation on the legs and the change in the plantar reflex. The plantar reflex was very difficult to obtain, but several times a reflex was obtained which was an extensor or Babinski reflex. These two signs, the loss of the vibrating sensation on the legs and an occasional Babinski reflex were the only two signs which enabled one to definitely decide in favour of organic disease and against malingering or functional disease. On examination six months later well-marked signs of organic disease could then be detected, marked

[4] Étude sur les Invaginations Intestinales Chroniques, Paris, 1878.
[5] Path. Soc. Transac., 1856, vol. vii.
[1] Brit. Med. Jour., July 20th, 1907; Review of Neurology, Aug., 1911.

ataxic gait, dragging of the legs, distinct paresis, ankle clonus and well-marked Babinski reflex on each side, affection of the muscular sense in the leg, loss of the vibrating sensation on the legs.

I have reported elsewhere other cases of combined postero-lateral degeneration of the spinal cord in which loss of the vibrating sensation was a useful sign of organic disease at a very early stage of the disease.

Other Conditions.

In *multiple* (or diffuse) peripheral neuritis (alcoholic, diabetic, &c.), as already mentioned, the vibrating sensation is often lost before other forms of sensation are lost. Loss of the vibrating sensation and loss of the tendo Achillis reflexes are often the earliest signs of peripheral neuritis of various forms, and these signs are especially interesting as indications of early nerve lesions in diabetes—"diabetic neuritis." Whilst in lesions of a *single peripheral nerve*, or a *nerve trunk*, I have always found that the vibrating sensation is recognised; and when other forms of sensation are affected (touch, pain, temperature) the vibrating sensation is still felt. These points will sometimes be of service in the differential diagnosis of such lesions.

In a case of localised paralysis, if the vibrating sensation is *lost* and other forms of sensation are felt, or lost, a lesion of a peripheral nerve or nerve trunk can be excluded as the cause of the paralysis. In a case of localised peripheral paralysis, if the vibrating sensation is *felt* and other forms of sensation *affected* or *lost*, a lesion of a peripheral nerve or nerve trunk is *probable*. In a case of localised paralysis, if the vibrating sensation is *lost* and other forms of sensation are *recognised*, and the patient persists in this statement in spite of suggestions to the contrary, then hysteria or malingering is very improbable.

In any case of hemianæsthesia, if the vibrating sensation is *not* felt when the foot of the vibrating tuning-fork is placed on the edge of the sternum on the side of the tactile anæsthesia, but felt when placed at a corresponding point on the other side, the case is one of hysteria or functional disease or malingering. (When the vibrating sensation is felt on both sides of the sternum no conclusion can be drawn from this fact as to the diagnosis.) In cases of hemianæsthesia due to organic disease, if sensation is impaired over the sternum at all, when the tuning-fork is placed over the half of the sternum on the anæsthetic side the vibrations would be transmitted across to the other half of the sternum and would be felt. In all cases examined by myself, if due to organic disease, the tuning-fork vibrations have been felt when the tuning-fork has been placed on either half of the sternum. Elsewhere I have reviewed the changes in the vibrating sensation in various other diseases.

As suggested in this note, the testing of the vibrating sensation, in some of the numerous cases of lesions of the cord and peripheral nerves now coming under observation in military practice, will occasionally be of distinct service in differential diagnosis.

A METHOD OF ESTIMATING THE VIBRATORY SENSATION,

WITH SOME NOTES ON ITS APPLICATION IN DISEASES OF THE PERIPHERAL AND CENTRAL NERVOUS SYSTEM.

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IN 1889 Rumpf contributed a paper in the *Neurologisches Centralblatt* on the response of different parts of the body to the vibrations of a series of tuning-forks, whose rates varied from 13–1000 per second. During the next 15 years there were various contributions to the continental medical press. Treitel, Bing, Egger, Rumpf, and others wrote on the subject, but their work was chiefly confined to experiments on the nature of the sensation. R. T. Williamson in 1905 took the subject beyond the experimental stage, and in a series of papers between that date and 1911 showed the clinical value of the vibratory sensation in diseases that involve sensory paths. In 1912 I published in the *British Medical Journal* a method by which the impairment of the vibratory sensation could be estimated as a numerical ratio.

Description of Method.

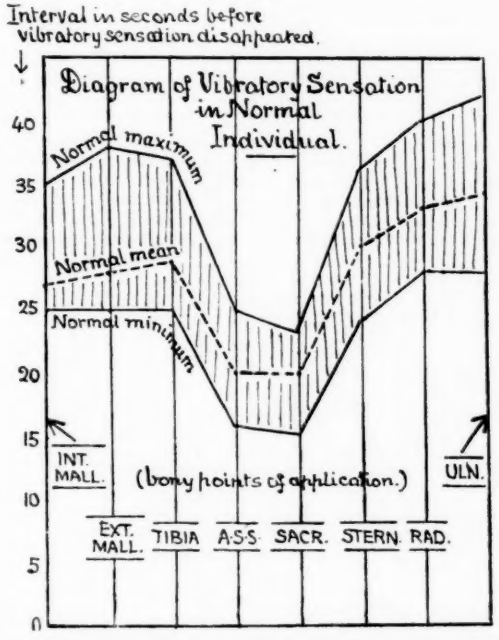
In my investigations, which date from 1911, I used a tuning-fork with a vibration-rate of 108·75, obtained from Messrs. Down Bros. Two pieces of steel are attached to the upper portion of the fork in such a manner that when the arms of the fork are vibrating a small window is seen between them. This disappears when the vibrations of the fork reach a definite amplitude. At this moment, when the window disappears, I apply the fork to the subcutaneous bony points and start a stop-watch. The patient is instructed to give a signal at the moment when he ceases to appreciate the vibrations. The watch is then stopped and the time recorded. By this method the fork is always applied when the fork is vibrating at a definite amplitude. The subcutaneous bony parts taken are the internal malleolus, external malleolus, tibia, anterior superior spine of the ilium, sacrum, sternum, radius, and ulna. By this method on 30 normal individuals between the ages of 18 and 30 I found at each bony point what interval of time elapsed before the sensation disappeared.

The mean intervals, in seconds, together with the maximum and minimum, are shown in the following table:—

Bony parts.	Mean.	Maximum.	Minimum.
Internal malleolus	27	35	25
External malleolus	28	38	25
Tibia (middle of shaft, inner aspect)	29	37	25
Anterior superior spine of ilium	21	25	16
Sacrum	20	23	15
Sternum	30	36	24
Radius (lower end)	33	40	28
Ulna (lower end)	34	32	28

When this test is applied to patients suffering from impairment of the vibratory sensation a numerical ratio to the mean normal is obtained, which represents the degree of impairment of the sensation. This can be described graphically, as in the following diagram (Fig. 1). The height in

FIG. 1.



the accompanying curve represents the time during which the sensation is appreciated by the normal individual.

Outline of Results.

During the last six years I have used this method in many cases of disease of the central and peripheral nervous system, and I have published the results at length in the *Quarterly Journal of Medicine* (November, 1917). I propose here only to outline the work and to summarise some of its conclusions.

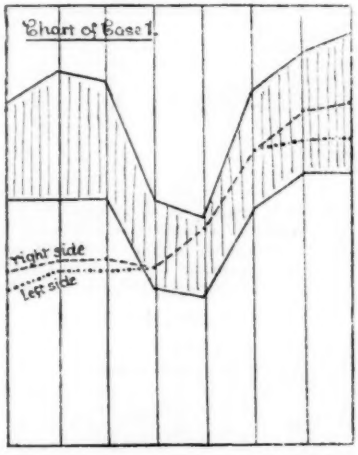
In peripheral neuritis due to diabetes, alcohol, or lead I invariably found a diminution in the sensation, which, however, differed in distribution in the different types. In the following table I have tabulated the changes in the vibratory sense and the distribution of these changes in typical clinical cases.

Area.	Diabetic neuritis.	Alcoholic neuritis.	Plumbic neuritis.
Arm	N	– vc	N
Sternum	N	N	N
Sacrum	N	– vc in advanced cases.	– vc
Leg	– vc	– vc	

N, normal. – vc, a diminution in the sensation.

Diminution in the vibratory sensation will be found in cases of alcoholism and diabetes before the loss of the ankle-jerk, which in turn is before the knee-jerk, and is

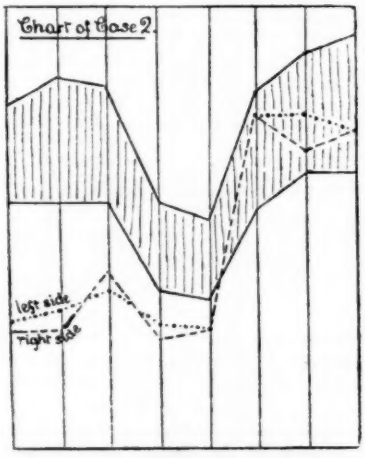
FIG. 2.



consequently of great value as a method of foretelling the danger of peripheral neuritis, and in many cases aids in the diagnosis of the primary cause of the symptoms.

I saw an officer who complained of chronic dyspepsia with occasional vomiting. A chart of his vibratory sensation (Fig. 2) showed an impairment over the lower limbs, the vibratory

FIG. 3.



sensation being about a quarter of the normal. Later he confessed to alcoholism, and his subsequent history proved the diagnosis.

In tabes dorsalis the vibratory sensation is found to be diminished (1) over the lower limbs and (2) over the sacrum. This diminution over the sacrum is constant and the curve obtained shows this contrast to that of peripheral neuritis. The following case illustrates these points.

A male, aged 45, chancre 15 years previously. Wassermann reaction positive. Frequency of micturition for five months. Pupils, Argyll Robertson; slight double ptosis. Knee-jerks and ankle-jerks absent, Romberg's sign present, but not marked. The vibratory sensation showed a diminution of about half over the lower limbs and sacrum. (Fig. 3.)

In my series of tabetic cases (15) the degree of Rombergism present was found to be in proportion to the depreciation of the vibratory sensation. The early cases of tabes, in which the only signs were Argyll Robertson pupils, positive Wassermann reaction of cerebro-spinal fluid, and absent ankle-jerks, showed a similar diminution in the vibratory sensation. In disseminated sclerosis there was a diminution in the vibratory sensation over the sacrum in all cases, but the diminution over the limbs was not constant, one or more limbs being involved uniformly. This diminution over the sacrum appears only to be present in diseases involving the spinal cord. In the motor neurone diseases, amyotrophic lateral sclerosis, progressive muscular atrophy, and paralysis agitans the vibratory sensation is normal.

The Nature of the Sensation.

I think the probability is that we are dealing with a multiple pressure sensation, and the sensation is the result of a summation of pressure stimuli. If the skin is rendered insensitive 20 per cent. of the sensation is cut off, pointing to the fact that part of the sensation is transmitted by the paths of cutaneous sensibility. The remaining 80 per cent. appear to follow the paths of deep sensibility.

The reason for choosing bony points for the application of the stimuli is that the bone acts as a "sounding board," transmitting the sensation to a variable distance round. This is well shown by the tongue, which, although a highly sensitive organ, does not appreciate the vibration as well as the wrist, the tissues of the tongue being less resistant and having no bony base to spread the vibrations.

Medical Societies.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

The Cancer Problem and its Clinical Significance.—Exhibition of Artificial Hand and Arm.

A MEETING of this society was held at the West London Hospital on Feb. 1st, Dr. A. J. RICE-OXLEY being in the chair.

Dr. A. KNYVETT GORDON read a paper on the Cancer Problem and its Clinical Significance, illustrated by microscopic slides and coloured plates. Having discussed some of the more widely known theories of the causation of cancer, including Cohnheim's and the parasitic explanations, and shown cause for their rejection, Dr. Gordon suggested that a disturbance of metabolism, very possibly that concerned with the production of cholesterin, might prove to be the exciting cause of the uncontrolled and abnormal cell proliferation. Turning to treatment, attention was called to the necessity of operating in the "pre-cancerous" stage, which could be recognised by the microscope. The fact that the injection of certain substances, such as blood and placental tissue, into mice made them less suitable for inoculation with mouse-cancer, inclined the speaker to think that the injection of such substances might prove useful as a prophylactic measure in the case of people whose family history showed frequent cancerous developments.

A discussion followed, in which Dr. F. J. MCCANN, Major R. H. JOCELYN SWAN, Mr. ASLETT BALDWIN, and others took part.

A visitor from New Zealand, Mr. P. MACKAY, exhibited an artificial hand and arm which he had made for himself. After his lucid demonstration, his statement that by the use of this apparatus he had, three months after the loss of his forearm, been able to build a six-room cottage was not so surprising.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Cases.—Discussion on the Vaginal Douche.

THE annual meeting of this society was held in Manchester on Jan. 18th. The election of officers was postponed to a further meeting in February, as it was felt that new officers should be elected and further meetings of the society take place if it was not to die out altogether, this being the third year in which no meetings had been held beyond the annual one. The annual reports of the secretary and treasurer were received as adopted.

Dr. W. FLETCHER SHAW (Manchester) read the notes of a case of *B. Coli* Cystitis Producing Intestino-Vesical Fistula. The patient was delivered of her first child with forceps, and within a few hours had a rigor with a temperature of 105° F. Dr. Shaw was called in the next day and could find no cause for the temperature, apart from an acid urine loaded with *B. coli*. Ten days later he again saw her, and found she had had a swinging temperature of 102° and 103° each day during these ten days, and he then withdrew 3 pints of urine, bright red with blood, and containing a large number of *B. coli*. She was admitted to St. Mary's Hospital, and the urine became very foul, but this gradually cleared up with pot. cit. and bladder irrigation, though at the end of two months she still had a large amount of sediment in the bladder, and it was found that only part of the boric lotion put into the bladder returned by the urethra, the other part coming away later by the rectum. She had become very emaciated. A diagnosis of intestino-vesical fistula was made and it was felt that the only chance was to open the abdomen and to close the connexion between intestine and bladder. This was done and it was then found that the bladder was firmly adherent to the anterior wall of the abdomen and both sides of the pelvis, apparently the result of a very severe inflammation, and one loop of intestine was adherent to the back of the bladder with which it communicated by a fistula the size of a quill pen. The intestine was separated and the opening in bladder and intestine easily closed, but the patient was in such an emaciated condition that she did not survive the operation.

Dr. SHAW also described a case of Thrombosis of the Mesentery Veins with symptoms simulating a twisted ovarian cyst and a case of Strangulated Intestine with symptoms simulating an ovarian cyst with twisted pedicle. The abdomen was opened and a small ovarian cyst found on the left side, but the symptoms were due to a loop of small intestine tightly constricted below a band joining the rectum to the back of the uterus. This loop was quite black and showed no signs of returning circulation when liberated, so the piece of intestine, 20 inches long, was resected and continuity re-formed by an end-to-side anastomosis. The patient made an uninterrupted recovery.

Dr. W. E. FOTHERGILL (Manchester) introduced a discussion on the Vaginal Douche, which he considered inferior to the methods of dry cleaning now in use when the object was to destroy pathogeric organisms, and, when used without discrimination, pernicious. The so-called hot douche, intended to reduce pelvic hyperæmia, was not used, in practice, hot enough to cause the desired effect. As used it was really a warm douche and increased pelvic hyperæmia. This was useful under certain circumstances—namely, when the absorption of inflammatory exudates had to be aided. This, indeed, was the only useful purpose for which, in his opinion, the douche could be used.—Dr. A. DONALD, Dr. J. E. GEMMELL, Dr. J. H. WILLETT, and others took part in the discussion, and the opinion generally held was that the habit of indiscriminate douching by women is bad, that the antiseptic douche is of questionable value, and that the warm douche, used with the same objects as a poultice or hot fomentation in inflammatory conditions, is useful.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At a meeting of the Council of the Royal College of Surgeons in Ireland, held on Jan. 17th, Dr. William Boxwell was unanimously elected Professor of Pathology and Bacteriology in the Schools of Surgery.

DOLLIS HILL HOUSE HOSPITAL, CRICKLEWOOD.—At the second anniversary of the opening of the hospital, to be held on Thursday, Feb. 14th, at 3 P.M., Dr. H. J. Macevoy will give the results of open-air treatment as practised at the hospital, and Sir William J. Collins will speak.

Reviews and Notices of Books.

A Text-book on Gonorrhœa and its Complications. By Dr. GEORGES LUYS. Translated and edited by ARTHUR FOERSTER, M.R.C.S., L.R.C.P. Lond. Second revised edition. With 201 illustrations in the text and 3 coloured plates. London: Baillière, Tindall, and Cox. 1917. Pp. xxi. + 386. Price 21*s.* net.

FOUR years have elapsed since the publication of the first edition of the English translation of Dr. Georges Luys's very full and comprehensive treatise on gonorrhœa and its complications.[1] During this time the Report of the Royal Commission on Venereal Diseases has been published, resulting in more attention being devoted by the profession in general to venereal diseases, and in the establishment of many clinics for the diagnosis and treatment of syphilis and gonorrhœa in their communicable stages. Under these circumstances it is only to be expected that a second edition of Captain Foerster's translation should be called for. In this edition few additions or alterations have been made. This is partly because no radical change in the treatment of gonorrhœa has been made in the last few years, and partly because the exigencies of the war have prevented collaboration between author and translator. Detailed criticism is therefore unnecessary. The book is full of information necessary for the surgeon who has to deal with cases of gonorrhœa, while the translator has been happy in preserving the attractive style of the author.

LIBRARY TABLE.

The American Illustrated Medical Dictionary. By W. A. N. DORLAND. Ninth edition. London and Philadelphia: W. B. Saunders Company. 1917. Pp. 1179. Price 21*s.* net.—The new edition of Dr. Dorland's dictionary is stated to contain 2000 new terms, many of which are the product of the war. This statement we can well believe, as constant use has failed to detect any lacuna ("P.U.O." is given and we miss "D.A.H." without regret) or, indeed, any more serious error than that William Banting is spoken of as a physician when he was really an undertaker, and that, although the French surgeon Schwartz is correctly differentiated from the German otologist Schwartze, some confusion has arisen in regard to the nature of Schwartz(e)'s operation. In spite of its 40 additional pages the bulk of the volume has been appreciably reduced by the use of thinner—but quite sufficiently opaque—paper. In its latest form "Dorland" will continue to find many friends on this side the Atlantic.

Health in Camp. By AUSTIN T. NANKIVELL, M.D. (State Med.) Lond., D.P.H. Cantab., Captain, R.A.M.C., Medical Officer of Health of the Borough of Poole. London: Constable and Co., Limited. 1917. Pp. 84. Price 1*s.* net.—In reprinting and amplifying one of a series of Chadwick Trust Lectures delivered in London at the end of 1914, the author has produced a little book which should be useful to all who lead a simple camp life, whether soldier, scout, or caravaner. So much is done for the inhabitants of towns by municipal authorities that special training is needed for those who are called upon to practise hygiene under more primitive conditions, a point to which Sir Shirley Murphy directs attention in an introductory note. Captain Nankivell's experience covers both the conditions of Army life in France and those of a sanitary area in England. Among the subjects dealt with are the site and laying out of a camp, water and its purification, huts, tents, and bivouacs, drainage, latrines, washing and cooking places, refuse disposal, and the minor ailments of camp life. The book merits a wide circulation.

Memoranda on Army General Hospital Administration. By Various Authors. Edited by P. MITCHELL, M.D. Aberd., Lieutenant-Colonel R.A.M.C. (T.F.), Officer Commanding No. 43 General Hospital. London: Baillière, Tindall, and Cox. 1917. Pp. vii. + 109. Price 5*s.* net.—This book covers a large field. In it are described the organisation of army general hospitals, the methods employed in the economical treatment of the disabled in war, and some suggestions are made in the direction of greater efficiency. The editor sets out in his introduction the aims and objects of army hospitals, and

[1] THE LANCET, 1914, i., 1048.

the succeeding chapters deal with the duties of the various officers, clinical and administrative, of the hospitals, the coördinating of the civil and military demands during a prolonged war, the nursing service, and the cooking arrangements. Chapters on the medical and surgical divisions of the hospital are contributed by Temporary Major A. W. Falconer, R.A.M.C. (T.F.), and Temporary Major G. H. Colt, R.A.M.C. (T.F.) respectively. Camp sanitation is discussed by Captain Robert Richards, R.A.M.C. (T.F.), and clerical duties by honorary Lieutenant and Quartermaster S. Taylor. The book will be useful to medical officers desiring to gain a comprehensive view of military hospital administration, and is not without its application to civil conditions.

JOURNALS.

The British Journal of Ophthalmology. Vol. I., Nos. 7–12 (July–December, 1917).—Previous numbers of this journal have contained biographies of William Mackenzie and Benjamin Travers in the British Masters of Ophthalmology Series. To these has now been added a description of the life and activities of James Ware, whose chief claim to recognition is the establishment of the value of needling for congenital cataracts. The original communications of the August number deal with injuries to the eye in war, and include papers by Lieutenant-Colonel H. L. Eason and Major Lockhart Gibson on the ophthalmic cases treated in Egypt and Lemnos respectively; by Mr. J. Jameson Evans on war nephritis; by Captain R. R. Cruise on the protection of the eye in warfare; and by Mr. J. H. Parsons on retino-choroidal ruptures. In a subsequent number a remarkable war injury —detachment of the retina at the ora serrata—is described by Mr. Arnold Lawson, and there is also an exhaustive article on the more accurate determination of the position of foreign bodies in their relation to the eyeball and its component structures, by Captain E. M. Eaton. Among the other original papers are those by Captain J. H. Fisher on enlargement of the pituitary body in pregnancy, as evidenced by visual symptoms, and on the use of atropine in the extraction of cataract; by Mr. Leslie Paton on functional spasm of accommodation; by Mr. George Mackay on uveo-parotitis with irido-cycloplegia; by Mr. W. H. McMullen on the evolution of the ophthalmoscope, and by Mr. Sydney Stephenson on the pseudo-neoplastic form of interstitial keratitis. Mr. Priestley Smith contributes the second part of his laborious investigation of the hydrostatic and hydrodynamic laws which govern the intraocular pressure and its relations to the blood pressure in the eye. There are the usual admirable abstracts of ophthalmic literature which would alone suffice to make this journal invaluable to ophthalmic surgeons, and contain much which appeals to practitioners in other departments of medicine and surgery. These numbers contain an innovation in the form of editorial "annotations," which afford opportunity, previously lacking in the *British Journal of Ophthalmology*, for ventilating questions of ophthalmic interest and expressing an editorial opinion upon them. At no time has this been more desirable than the present, when the relationship of the profession to the State involves new practical problems which cannot be ignored. Some of the topics discussed are of great importance at the moment, such as the relationship between ophthalmology and military service. Other annotations deal with the physiology of the eye and colour vision, antityphoid inoculation and ocular lesions, ophthalmology in Italy, the standardisation of the illumination of test-cards and perimeters, and so on.

Journal of Urology: Experimental, Medical, Surgical. Vol. I., No. 1. Edited by HUGO HAMPTON YOUNG. Cambridge University Press, Fetter-lane, London, E.C. Issued bi-monthly. Subscription price 23*s.* a year. Baltimore, U.S.A.: Williams and Wilkins Company.—We have recently received the first number, dated February, 1917, of this new serial publication, issued every two months, devoted to urology. A short editorial foreword states that its object is to provide a medium for the collation of the work of surgeons, physicians, and others working on different lines in the evolution of our knowledge of the genito-urinary tract and its diseases. Few branches of surgery have shown greater advances in recent years than urology, so that the appearance of a journal in the English language devoted entirely to this subject is obviously opportune, and we feel sure that, under the distinguished editorship of Professor H. H. Young, of Baltimore, the *Journal of Urology* has begun a useful career. The first number has nearly 140 pages of well-printed and well-illustrated matter, and contains nine articles connected with urology. The editor records very fully a case of double ureter and kidney with calculous pyonephrosis involving one-half, cured by partial resection. Other articles describe methods of research into the physiology of the genito-urinary tract, as well as practical considerations in connexion with the operative surgery of the kidney. We wish the journal every success.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

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EUPEPTON provides a satisfactory peptone in bacteriological work for the preparation of a nutritive medium. According to our examination, 89·50 per cent. of the powder is soluble in cold water. This practically amounts to complete solubility, taking the percentage of moisture present into account. The solution contains both albumose and peptone. The total nitrogen amounts to 12·25 per cent., the mineral matter to 13·30 per cent., and moisture to 8·50 per cent. Bacteriologists will welcome a peptone equal in all respects to that formerly supplied from German sources.

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The analysis of this grape-juice gave the following results:—Extractives, 16·90 per cent.; reducing sugar, 14·30 per cent.; total acidity calculated as tartaric acid, 1·20 per cent.; mineral matter, 0·32 per cent. (chiefly potash salts). It is described as a wine made in the Burgundy district from pure grapes, "but it contains no alcohol whatever." On distillation the last statement was confirmed by the fact that the distillate showed the specific gravity of water—viz., 1000—although just the merest trace of alcohol was shown to be present by the formation of some iodoform on adding alkali and iodine solution. The test, however, is a very delicate one. Challand is a lightly red-tinted fluid with the characteristic sweet and acid taste of grape-juice. We could find no objectionable preservatives present, and at the time of examination the samples were in sound condition. It forms an agreeable and refreshing beverage when diluted, particularly with aerated water.

The Treatment of CARBUNCLES, BOILS, ANTHRAX, ACNE, STYES, and Diseases arising from Staphylococcus.

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A scientific production the value of which has been studied very closely. The effect is very prompt; from the second day of treatment the pain is relieved, the carbuncles begin to dry up, and those which are just opening are stopped in their course; the core is not expelled but reabsorbed.

In the majority of cases definite results are obtained within five or six days; it is seldom necessary to take the full ten days' treatment, and relapses are unknown.

Vide THE LANCET, Jan. 19th, 1918, pp. 99 and 109.

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Supplied in vials of 80 tablets.

The Scientific Treatment of INFLUENZA and allied ailments.

KINECTINE

According to Dr. MOUNEYRAT, the discoverer of Galyl and Hectine (the widely adopted Salvarsan Substitutes).

FORMULA:

Chlorhydrate of Quinine c. Hectine—i.e., *Benzo-sulfone-para-amino-phenyl-arsenate of Quinine.*

Non-toxic, produces no ill-effects.

Easily taken (tablets) and well tolerated.

Highly satisfactory clinical results.

Not only a Prophylactic against, but a specific in

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H.M.S. ———, 27-7-17.

SIR,—I enclose P.O. for the tube of Kinectine. The drug has given every satisfaction.

W. B. H. W., Surgeon, R.N.

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AMBRINE instantly alleviates pain, promotes rapid healing, forms a sure Protection against Infection of the Wound.

Although the dressing with AMBRINE is occlusive and adhesive, it becomes after a short period non-adhesive, and can be removed without pain, hæmorrhage, or injury to the newly forming tissues. The healing takes place without leaving scars or contraction.

May be applied with camel's hair brush, but our specially designed spray greatly facilitates the application.

The BRITISH MEDICAL JOURNAL, Sept. 2nd, 1916:—

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"..... The primary and quite incontestable advantages of the treatment are two: it is agreeable to the patient, because entirely painless; it is convenient to the surgeon, because easily and quickly applied. ..... It is possible that the treatment would be useful in dealing with ordinary ulcers, and in any case it is certain that the study of its application to the raw surfaces is worth pursuing. ....."

26/10/17. R——

DEAR SIRS,—I thank you for the Ambrine. I found it very effective in a chronic and very painful varicose ulceration of leg.

Please send some more Ambrine, about 5s. worth.

A. G. W.,
M.R.C.S., L.R.C.P., &c.

THE LANCET, June 10th, 1916:—

THE VALUE OF AMBRINE IN THE TREATMENT OF WOUNDS.

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The most efficient means and method of ensuring active **Hyperthermal-Therapy** to the practical treatment of **Varicose Ulcer, Rheumatism, Gout, Arthritis, Neuralgia,** and similar affections.

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THE LANCET.

LONDON: SATURDAY, FEBRUARY 9, 1918.

Belgian Doctors' and Pharmacists' Relief Fund.

THE meeting of the General Committee of the Belgian Doctors' and Pharmacists' Relief Fund, which took place on Thursday in last week at the house of the Royal Society of Medicine, under the chairmanship of Sir RICKMAN GODLEE, was held to afford an opportunity to the Executive Committee to review the position of the Fund and to describe the uses which had been made of its resources. The meeting, the proceedings of which are elsewhere described, was a small one, but nothing else was expected, inasmuch as the position of the Fund had been fully explained in the columns of the medical and pharmaceutical press, and the reasons for the meeting detailed. All the subscribers, kept informed regularly of the progress and expenditure of the Fund, know that a point has been reached at which it is necessary to decide whether a new effort should be made in face of the fact that owing to the duration of the war the money subscribed in response to the first appeal is practically exhausted, while the need of our Belgian colleagues is as bitter as ever. As a result of the first and last appeal made in November, 1914, a sum just short of £21,000 reached the hands of the treasurer. This money, during its gradual disbursement, earned by careful investment another £1000. From the earliest days of the movement the acute needs of the Belgian doctors and pharmacists who had taken refuge in this country at the outbreak of war, frequently accompanied by their families, were met by the Fund, and gradually these men were rendered self-supporting. The General Medical Council arranged for their registration in this country as legal practitioners, when the Fund paid the necessary fees; some returned to their own Army, some took, and hold, posts in this country, some ministered to the relief of the Belgian refugees; all received help on application to the Fund.

Gradually the responsibility to these refugees grew lighter, when the Fund, mainly on the advice of Mr. HOOVER, at that time Director in Europe of the Commission for Relief in Belgium, decided to send through that Commission a substantial sum monthly for disbursement in Belgium to doctors and pharmacists working in that country under the terror of German rule and in circumstances of cruel need. The machinery for such disbursement was provided by a representative committee of Belgian doctors and pharmacists, sitting regularly in Brussels, several of whom are well known personally to professional colleagues in Great Britain and America. The Belgian Committee came into existence in the early days of the war, and through Mr. HOOVER the money was regularly transmitted to them in mensualities and a receipt obtained, as well as a detailed account of the expenditure. The sum sent was £800 a month, and, when this policy of regular disbursements was embarked upon, it was easy for the Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund to fix the date by which their treasury would be emptied. That date was the end of 1917, by which time, no doubt, they hoped that the war would have been brought to a favourable termination; and when we consider the authoritative and even official estimates of the duration of the struggle which were made public in 1916 and 1917, it is difficult to see how the Executive Committee could think otherwise. When it became clear that the successful termination to the war still lay far ahead, no way of husbanding their resources was open to the Committee save the sending of smaller mensualities, a policy which they rightly discarded as one of no practical value, one which might upset arrangements for disbursement made by the Belgian Committee, and, indeed, one which would only prolong the appearance of doing good without adding to the substance of the good done. This was the story told by Sir RICKMAN GODLEE and Dr. SQUIRE SPRIGGE to the meeting of the General Committee of the Fund, and it was supplemented by an eloquent appeal from Dr. HAROLD DES VŒUX, the honorary treasurer of the Fund, for more money to carry on the work. In moving words Dr. DES VŒUX pointed out that it was hardly an exaggeration to say that the unexampled heroism of Belgium in August, 1914, by giving England a few short hours in which to assist the French Army, saved Paris, saved the Channel ports, and saved, perhaps, the civilised world from German over-rule. These things give every Belgian a permanent claim on every citizen of the British Empire, and, generously as the doctors and pharmacists in all quarters of the British Dominions have responded to the request to assist their Belgian colleagues, we must not let our efforts die down. A letter from Mr. W. B. POLAND, who succeeded Mr. HOOVER as Director in Europe of the Commission for Relief in Belgium, is published on p. 228 of this issue of THE LANCET, and shows how grievous is the need which the contributions of our doctors and pharmacists have helped to alleviate, and how grave will be the disappointment in Belgium if these contributions have now to be withheld.

We earnestly beg our readers to come to the assistance of the Fund, and to give to it as largely and as promptly as possible. The sum of at least £10,000 is required immediately, so as to enable the monthly payments to be made regularly and without any possibility of default for the next six months. During that time the Executive Committee hope to be able to collect a sufficient sum to meet the wants of a further six months on the scale hitherto adopted, trusting that there will be no terrible need for increasing the mensualities. But it must always be remembered that the plight

of the Belgian doctors and pharmacists is growing steadily worse. In begging loudly and anxiously for subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund we wish to call special attention to a proposal made by Sir ALFRED PEARCE GOULD that a request should be made by the Fund for monthly subscriptions "as long as the war lasts." The suggestion is an extremely practical one—if 2000 doctors and pharmacists would comply with it to the extent of ten shillings each the work could go on with enhanced vigour. It was adopted by the Executive Committee at the meeting, and was handsomely endorsed on the spot by its originator.

New Housing Schemes of Local Authorities.

THE intention to provide public money for housing schemes on a large scale, which has been announced by various Ministers, may be accepted as a generally agreed article of national policy after the war, and the Local Government Board has lately been taking active steps to obtain information from local authorities regarding the present shortage of houses and the places in which new building is specially necessary. The department, with a view to assisting local authorities under the Housing of the Working Classes Acts, has also recently issued a useful Memorandum, illustrated by plans, on the construction of the dwellings which are considered most suitable for working-class populations in town and in country districts. The Memorandum points out that local authorities should be concerned almost exclusively with dwellings for the poorer classes, leaving the accommodation of the higher-paid working man's family to private enterprise. The plans therefore mainly represent pairs or groups of cottages for rural areas, and for the towns streets of small, self-contained, two-storey dwellings. The plans are accompanied by an explanatory statement on the requirements of the Local Government Board in respect of these houses in such matters as selection of site, number of buildings on area, and accommodation to be provided; the statement specifying particularly the requirements relating to number and height of rooms, drainage, water-supply, baths, food stores, and the nature of doors, windows, and other fittings. The Board states that the standard of construction should be such that the buildings should be maintainable as in all respects fit for human habitations for at least 60 years. The cost of land, which is often represented as prohibitive to building schemes, as a rule, should form only a small fraction of the loan charges. On a basis of 12 houses to the acre and land at £100 per acre, the loan charge for land purchase per house would work out at about 2*d.* per week.

Experience shows that in the past there has been a great demand for this kind of small dwelling, and no doubt houses which are constructed in the way advised in the Memorandum would constitute a great advance on the many streets of otherwise similar buildings which grew up monotonously in the suburbs of the large towns during the latter part of last century. Their provision, however, would only afford a partial solution of present-day housing questions. The war has greatly increased public appreciation of the convenience to working men and women of houses which are near their place of employment, and has opened the eyes of all men and women to the pecuniary and labour-saving advantages of communal arrangements in the daily life of the home. One of the chief defects of the flat or tenement system for working-class communities in this country has hitherto been that the opportunities for economic collective provision have so seldom been used for families, though they have, of course, been developed in Rowton houses and other model lodgings where good management and supervision, the essential conditions to success, have been secured. It should be possible for the central housing authority, besides issuing designs of cottages and small streets, to give models of good and healthy family tenements, with fair-sized rooms, to be owned and managed by the local authorities, and to include common kitchens, canteens, dining rooms, baths and drying rooms, managers' quarters, and other advantages which can be got from the tenement system. The provision of such tenements would form a useful supplement to the scheme for conversion and reconstruction of existing houses and dilapidated property for working-class needs, to which we recently referred,[1] and which in some parts of the country, and especially in London, will form, perhaps, the most important and pressing of all the housing undertakings which public authorities will be required to take up after the war.

[1] THE LANCET, Jan. 26th, 1918, p. 151.

THE LANCET, VOL. II., 1917: THE INDEX.

OWING to the continued shortage in the paper-supply the Index and Title-page to the volume of THE LANCET which was completed with the issue of Dec. 29th, 1917, have been printed separately, and copies have been supplied gratis to those subscribers who have, up to Feb. 7th, intimated to us their wish to receive them. Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W.C.2. Such applications should be sent in at once.

The Manager will be obliged if subscribers who have no further use for them will return to him their copies of the Indices to Vols. I. and II., *1916*. They should please be addressed to him as above.

THE CHILD-WELFARE SCHEME IN BELFAST.—The corporation of Belfast, through the public health committee, have decided for the present, in deference to the views of the medical profession (see THE LANCET, Feb. 2nd, p. 198), not to extend the child-welfare scheme so as to include domiciliary treatment. In submitting the scheme to the monthly meeting of the Belfast city council on Feb. 1st the public health committee reported that in their opinion there was not at present sufficient work for more than two medical officers, and suggested that a trial be made for one year on that basis. However, the council by 27 votes to 13, appointed Dr. Elizabeth Bell as a third medical officer.

Annotations.

"Ne quid nimis."

INFANT MORTALITY DURING WAR CONDITIONS.

THE number of infants out of every thousand born each year who die before completing this same year is universally regarded as an important index, but precisely of what is still in dispute. Urbanisation, poverty and its congeners, ignorance of mother-craft, each has its advocates. But that the infant mortality-rate is an index of the first importance from a broad medical, social, and economic point of view is not in doubt, and the figures which were quoted last week from the Registrar-General's provisional returns for the information of health officers are profoundly disquieting. In the year 1914, which may be taken for the matter in hand as a pre-war year, the rate of infant mortality for England and Wales was 105 per 1000. In 1915 the figure rose to 110, an increase generally, and probably justly, attributed to the general dislocation in the habits of a civilised community produced by the novel conditions of warfare. This rise in 1915 was followed by a far more than compensating fall in 1916, when the rate was 91, a figure not merely good in comparison with that for 1915, but the lowest figure ever recorded, the nearest approach being 95 in the year 1912. General consensus of informed opinion attributed the fall in large part to the increased prosperity of the working-class population due to high wages, diminution of unemployment, and a liberal scale of separation allowances. Sir Bernard Mallet records, without comment, a rise of 6 per 1000 in the rate for the country at large during 1917, the figure being 97 for England and Wales. It is obvious that with the cost of food and other necessities increasing more rapidly than the current rate of wages, the relative prosperity of the population at large has been waning, and this may, at all events, be taken as a large factor in the rise of the infant mortality-rate, but something more than this must be at work, inasmuch as the rate, which has risen 6 per 1000 for the country as a whole and 6 per 1000 also for the 96 great towns, including London, has risen 16 per 1000 in the case of London itself. The high rate normally associated with urbanisation might naturally be expected to fluctuate concurrently in London and the large provincial towns, and, as a matter of fact, has always done so. There must therefore be some special factor in 1917 which has been more operative in taking this toll of infant life in London than elsewhere. The factor is not far to seek and can be none other than the cumulative action of prolonged mental strain upon the nursing mother. Biological principles automatically ensure a large measure of maternal altruism, and so long as the mother is able to suckle her infant the quality of her milk remains good in the face of real privation such as has been experienced in occupied territory; but there comes a point at which mental strain results in the cessation of the supply of breast-milk, and the experience of welfare centres in a part of London hitherto more exposed than others to the strain of aerial warfare has shown a serious diminution in the number of infants solely breast-fed up to the normal age of weaning. Doubtless other factors also come into play. The regularity of the infant's manner of life has been affected, sleep impaired, and unlimited opportunities of exposure and infection provided. Organised effort is urgently required to combat these evils intelligently and to mitigate the harm which is accruing to the London infant from deficient lactation. The startling fall in the birth-rate which the Registrar-General also records may be a matter of regret, but is simply the inevitable result of the segregation of the sexes entailed by the war. But the child-welfare administrator has immediate work to do which will leave scant time for vain regrets.

TYPHUS IN PETROGRAD.

RECENT reports from special correspondents in Petrograd, published in some of the London daily papers, inform us that "spotted" or exanthematic typhus is severely epidemic in the capital of Russia, and that many deaths have already resulted. Typhus is not a new disease in Petrograd, for each winter has seen a prevalence of the disease in many past years. In 1916, so far as can be ascertained, there were 385 reported cases and 82 deaths from typhus in the city, the case mortality rate being as high as 24·7 per cent.; and up to July, 1917, about 300 cases had been notified. As is well known, this malady is one that has its chief incidence in the winter months, so that, given the favouring conditions mentioned below, this is the time of the year that we might expect the development of a typhus epidemic. One of the present results of the revolution that has taken place in Russia has been the supersession in Petrograd and some other cities of the State and municipal medical and sanitary services. Even the hospitals have been affected, for physicians and nurses in many instances have temporarily vacated their posts rather than submit to the dictation of illiterate peasants, soldiers, or sailors, who, with the supreme confidence begotten of crass ignorance, have arrogated to themselves the carrying out of State or municipal services. Many of the inhabitants of Petrograd have left the city to escape from the intolerable conditions which have arisen from the suppression of municipal government and the absence of the sanitary service which aids in keeping the capital healthy and its surroundings wholesome. These refugees have sought temporary asylum with their friends or relations in other towns or country districts, leaving the poorer folk of Petrograd, who have not the means to leave their homes, to suffer the consequences of the sanitary chaos in which the city finds itself. It is among these unfortunate people that exanthematic typhus is making its ravages felt at the present time. With sanitation typhus fever gradually disappeared from Britain and more advanced countries; practically, exanthematic typhus in England may be said to be an extinct disease. But it is otherwise in Russia, and particularly in Petrograd, where personal and domestic hygiene is little practised. When personal uncleanliness, infestation by lice, overcrowding, and other insanitary conditions are aggravated by shortage of food and other necessaries, as well as by the withdrawal of skilled medical and sanitary supervision, it is little wonder that a disease like exanthematic typhus has been able to increase and multiply. In the absence of a competent and responsible health authority to enforce appropriate preventive measures, including the isolation of the sick in hospital and destruction of body vermin, the present epidemic will probably continue for

some time. There is therefore the dismal prospect immediately before the people of Petrograd that there will be a considerable increase of physical suffering to many of them, with a high proportion of fatal results, from a pestilence that is easily preventable if the teachings of modern medicine are followed.

TREATMENT OF PAINFUL NEURITIS RESULTING FROM WOUNDS OF WAR.

OF the many varieties of traumatic peripheral nerve lesions met with in the course of three years and more of warfare there is one which by reason both of its comparative rarity and its unmistakable clinical symptomatology is peculiar and distinctive. Certain injuries of the nerve trunks are from the outset progressively painful; many others are, relatively speaking, painless. In the former group the condition is such that it ends by entailing a degree of suffering unbelievable by those who have not seen clinical instances; the patient acts as though the affected nerve were accessible to every breath of air, every passing sound; he will sit nursing the affected limb as though it were on fire with pain, while perspiration pours off him; his existence is spent in the endeavour to defend the nerve at all costs from the paroxysms of pain that rend his being. The *locus classicus* for the clinical description of the condition is the little volume on "Gunshot Wounds and Other Injuries of Nerves," published towards the close of the American Civil War by Dr. S. Weir Mitchell, Dr. George R. Morehouse, and Dr. William W. Keen, then young assistant surgeons with the Northern forces. They suggested the term causalgia for the condition. Another term, "thermalgia," was proposed by Dr. J. S. B. Stopford in THE LANCET of August 11th, 1917. In their book the authors said they exhausted their ingenuity in devices for the relief of this formidable symptom. Eventually they obtained the best results by thorough and repeated blistering, 10, 12, or more being applied in succession, one to be used as soon as the preceding one healed. In this war a considerable number of cases of causalgia have been seen, and we draw attention to an interesting communication on the subject by Médecin-Major J. A. Sicard, which appears elsewhere in this issue. Major Sicard emphasises the curious fact that we are still ignorant of the precise pathogenesis of painful neuritis, though there seems to be a consensus of opinion, perhaps based on insufficient pathological evidence, that it is the expression of a localised or circumscribed infective inflammatory process in the nerve itself. Another feature of the condition is that certain nerves are more prone than others to be associated with this burning pain; our experience in England corresponds more or less with that of Major Sicard, who places the median first, then the sciatic in either of its main branches, the ulnar, the anterior crural, and the radial. The presumption is that this selective action is due to some anatomical peculiarity—what that may be is at present unknown. Several French writers have supposed the pain to arise from concomitant implication of sympathetic nerve filaments in the neighbourhood of the main vessels nearest to the particular nerve involved, and have shown that relief can be obtained by stripping these sympathetic fibrils from the vessel sheath. Be this as it may, one of the significant features of the condition is that vasomotor and trophic disturbances are conspicuously present, while with complete anatomical discontinuity of the nerve no causalgia results. The paramount question in connexion with painful neuritis is its treatment. The method of alcoholisation of the nerve-trunk above the level of the lesion is so much superior to any other that it may be regarded as practically a specific. In England we have had many instances of the efficacy of the procedure. Mr. J. Hutchinson discussed its relation to the surgical treatment of trigeminal neuralgia in his Hunterian lecture at the Royal College of Surgeons of England this week. Where it has apparently failed when utilised for spinal nerves there is reason to suppose it has not been properly applied. Major Sicard in his paper gives so exact a description of his technique that no comment is necessary. It should be noted that he endeavours to inject the whole length of the main trunk; alternatively, he injects in two or three places in the trunk. We are convinced from experience that apparent failures have been due to inadequate alcoholisation too near the actual—i.e., visible—site of the nerve lesion. Whatever be the underlying pathology, it is legitimate to assume a microscopical or biochemical process which may extend much more than a few millimetres from the visible injury; hence there may still be central irritation after insufficient alcoholisation, and, in the usual way, this central irritation may be referred to the periphery, even though there is complete cutaneous anæsthesia after the injection. Such must be the explanation of the anæsthesia dolorosa of an imperfectly treated case.

OCCUPATION AND MORTALITY IN NEW YORK.

WE have received from Dr. Shirley W. Wynne and Dr. William H. Guilfoy, of the Health Department of the City of New York, an interesting article on the above subject, based upon the mortality records of that city in the year 1914. In addition to the cause of death, the previous occupation of the deceased during life is stated in the official medical certificate, so that the mortality records of every industry are to that extent complete. But the authors point out certain sources of error, for which correction is impossible, and these undoubtedly detract from the value of investigations of this character. Chief among them is the lack of knowledge concerning the numbers engaged in the several occupations, as well as in respect of the age, sex, and nationality of the workers therein employed. In default of such knowledge it is manifestly impossible to compute accurate death-rates or to make valid comparison of the mortality incidental to the several occupations. For reasons stated in the text, the present method of study of the relation of industry to mortality is avowedly defective, and is only employed in the unavoidable absence of the fuller statistical data universally regarded as indispensable. Nevertheless, by tabulating the causes of death of workers at the several ages it is possible to obtain partial information respecting the hazards encountered in the various industries. By such means attention is usefully directed to those employments which entail excessive loss of life, when measures for the improvement of the conditions under which such employments are carried on obtain adoption. In New York, as in the manufacturing towns of our own country, affections of the respira-

tory organs, including pulmonary tuberculosis, are responsible for a large share of the mortality experienced in the principal industries. The present investigation once more confirms the practically universal judgment that loss of life from these affections is exceptionally great in those occupations which are carried on in crowded and ill-ventilated offices and work-rooms; and in New York this is particularly observable in the experience of the occupational group of "clerks, book-keepers, and office-assistants." In this group the mortality from pneumonia is uniformly high throughout all age-periods. These workers also succumb to pulmonary tuberculosis about twice as fast as do all other persons above the age of 15 years. Next to the foregoing in the order of excessive mortality comes the indefinite group of general labourers, the aggregate loss of life amongst whom from these causes is almost equally significant. Up to the age of about 25 years labourers are said to be comparatively healthy, but beyond that age they are subject to a death-rate from twice to three times the average for the general population. They suffer from pneumonia also more than other workers, and their mortality from this cause is uniformly high at all stages of life. Among teamsters and drivers the mortality from tuberculous phthisis is so much above the average that it readily arrests attention; they also suffer inordinately from other respiratory affections. It is probable that these workers succumb to lung diseases in undue proportion because of their exceptional exposure to inclement weather, but it is instructive to note that in this occupation the incidence of alcoholism is high, almost 3 per cent. of the total deaths being assigned to this cause. The authors express the determination to pursue the subject further, and in a future report to deal with the mortality incidental to all the important industries in which the civilian community are engaged.

THE PROPER FOCUS OF MEDICAL STUDIES.

THE natural study of mankind is man, and to the student of medicine at every stage in his career the human body is the one and essential laboratory whether the processes under investigation are chemical, physical, biological, or what not. Test-tubes, frogs, and geranium stalks are convenient for observing simple processes and reactions which will lead on to a proper understanding of the workings of the human body, but regarded as an end in themselves they are sheer waste of time. The water-tight system which has allowed such a state of things to come about has had a curious result in Scotland related by Mr. F. E. Jardine in the valuable discussion at the Edinburgh Pathological Society to which allusion was made in these columns recently. In the Scottish course of training the second-year student comes into contact early with the living person in the out-patient department of the hospital, and begins, as is natural, by taking a deep personal interest in him. On the return of the student to hospital after a year's work in anatomy and physiology, Mr. Jardine states—and others have noted the same thing—his outlook is completely changed and personal interest in the patients is no more. The interest is still there, but it has become decentralised and scattered over a series of objects only loosely attached to the central interest. Is there no way, Mr Jardine asks, of bringing the student at an early period into contact with the patient and making that contact continuous until he obtains his medical qualification? At many teaching centres it has been the practice for students to attend "consultations" at which the members of the medical or of the surgical staff in turn, beginning with the youngest, state their view of the case before them, giving reasoned grounds for their opinions. During the war the proceeding has no doubt been largely discontinued, but we think it only remains in abeyance. Could not such consultations be widened to include the whole range of medical studies, and, instead of four physicians or four surgeons officiating, the most prominent representative of each large group of studies take his part? For instance, in a case of rickets a chemist, a physiologist, a physician, and an expert in social conditions. If this were carried out and attendance on such consultations made obligatory to the student, something would be done to make him realise that all medical and ancillary studies have their one and only focus in the sick man himself. Medical education needs to be aimed more at this central idea.

SYPHILIS OF THE BLADDER.

JUDGING by the scanty records, syphilis of the bladder must be very rare. In the *Journal of the American Medical Association* Dr. H. A. Fowler has reviewed the subject. Its history falls into three periods. The first consists of rare observations on syphilitics coming to necropsy with ulcers, growths, or perforations of the bladder cousidered to be due to the disease. This period ends in 1879, when Proksch reviewed all the published cases and could find only six which he considered conclusive. In the second period a small number of cases were observed clinically in which the diagnosis was confirmed by disappearance of the symptoms under antisyphilitic treatment. The third period begins in 1900, when Matzenauer described for the first time the cystoscopic appearance of tertiary syphilis of the bladder. About 40 cases have now been reported. In 1909 it was shown that the bladder is involved in the secondary stage. According to Levy Bing, systematic examination of the bladder during this stage shows a more or less characteristic erythema resembling the roseola of the skin, and superficial ulcers are not rare. As few or no symptoms result, these lesions may easily be overlooked without routine cystoscopic examination. Nine cases of secondary syphilis of the bladder have been reported, six in males and three in females. The youngest patient was a child aged 4 years, who had been infected by a nurse. At necropsy extensive ulcerations of the mucous membranes, including those of the bladder and urethra, were found. In all cases the vesical lesions were accompanied by secondary syphilis elsewhere. Secondary ulcers are usually multiple, and occur most frequently about the ureteral orifices. The adjacent mucosa is œdematous and hyperæmic. The symptoms vary with the location and character of the lesion. Ulceration at or near the vesical neck produces more or less acute symptoms of cystitis—frequency and urgency of micturition and tenesmus and pain referred to the suprapubic and perineal regions. If hæmaturia occurs it is never profuse, and always lasts only a short time. The urine is often clear, but may be turbid from the presence of pus and organisms. By far the greater number of cases of

syphilis of the bladder have been observed during the tertiary stage. This may be due to the more pronounced symptoms. Gummata of the bladder develop insidiously and in the early stage produce little or no disturbance. Micturition is slightly more frequent, is associated with discomfort in the region of the bladder, perineum, or urethra. Symptoms of cystitis may develop and increase rapidly. Hæmaturia is the most constant and the most striking symptom of tertiary syphilis of the bladder. It closely resembles the hæmorrhage of new growth. It appears suddenly without pain and is uninfluenced by rest. It may continue for days or weeks and gradually subside, only to recur. Complete retention may result from clotting within the bladder. Pain is an inconstant symptom and varies with the location of the lesion and the presence or absence of complicating infection. The cystoscope shows two forms of lesion—gummatous ulcers and papillomatous growths. The ulcers are usually multiple. They are elevated and present a punched-out appearance with irregular borders and a greyish necrotic base. They may involve the deeper layers of the bladder wall and result in perforation with fatal peritonitis. If the process is slower a loop of bowel may become adherent to the bladder, and perforation into it takes place. From perforation of the base of the bladder vesico-rectal or vesico-vaginal fistula may result. A striking feature of syphilis of the bladder is prompt response to specific treatment; the symptoms immediately subside and gradually disappear. Profuse and persistent hæmaturia, which is often the predominating symptom, disappears in a few days under mercury or salvarsan.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

June 30th, 1917.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
Leicester	50	0·17	3·75	7·25	2 02	3·42	16·61	1·71	0·46	0·24
London—										
Meteorological Office...	80	0·16	1·96	2·46	2·56	2·24	9·38	0·96	0·59	0·16
Embankment Gardens	68	0·04	1·45	2·31	3·65	4·28	11·72	2·92	0·53	0·16
Finsbury Park ...	96	0·17	5·24	17·16	2 88	4·38	29·82	1 56	0·42	0·12
Ravenscourt Park	109	0·30	2·62	8·99	2·39	2·34	16·64	1·70	0·41	0 19
Southwark Park	35	0·02	1·83	5·49	1·44	2·77	11·55	1·34	0·39	0·10
Wandsworth Com.	28	0·02	0·01	0·24	0·97	1·23	2·47	0 72	0·17	0·06
Golden Lane ...	76	0·04	1·93	3·81	2·74	3·35	11·85	1·65	0·59	0·37
Malvern	54	Nil.	0·26	0·61	0·38	1·28	2·55	0·43	0·15	0·02
Manchester—										
Queen's Park ...	38	—	—	—	—	—	15·70	—	—	—
School of Technology	21	—	—	—	—	—	11·40	—	—	—
Newcastle-on-Tyne	31	0·13	4·26	10·82	1·25	3·61	20·07	1·91	0·33	0·14
Rochdale...	—	—	—	—	—	—	34·60	—	—	—
St. Helens	36	0·12	2·91	5·27	2·14	3·58	14·02	1·71	0·93	0·16
SCOTLAND.										
Coatbridge	68	0·09	2·03	7·12	2·52	4·79	16·55	2·65	0·17	0·22
Glasgow—										
Alexandra Park...	51	1·93	2·28	5·26	1·29	2·78	13·54	1·39	0·10	0·22
Bellahouston Park	72	0·32	3·70	9·76	1·08	5·12	19·98	1·85	0·14	0·23
Blythswood-sq....	58	0 21	2·45	5·88	18·67	4·09	31 30	2·10	0·15	0·15
Botanic Gardens	78	0·23	3·34	6·00	1·56	5·13	16·25	2·40	0·23	0·23
Richmond Park...	65	0 44	1·14	6·08	1·05	5·50	14·21	2·35	0·14	0·31
Ruchill Park ...	69	0·21	3 04	9·25	1·25	4·36	18·11	1·90	0·11	0·13
South Side Park.	80	0·17	2·29	6·07	1·93	4·74	15·20	2·14	0·09	0 1·
Tollcross Park ...	62	0·35	3·91	16·92	1·05	5·59	27·82	2·53	0·14	0·13
Victoria Park ...	74	0·22	2·27	8·10	1·41	3·40	15·40	1·93	0·04	0·16

July 31st, 1917.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre. Insoluble matter. Tar.	Insoluble matter. Carbonaceous other than tar	Insoluble matter. Ash.	Soluble matter. Loss on ignition.	Soluble matter. Ash.	Total solids.	Included in soluble matter. Sulphate as (SO_3).	Included in soluble matter. Chlorine (Cl).	Included in soluble matter. Ammonia (NH_3).
ENGLAND.										
Leicester...	38	0·04	2·08	3·94	0·77	2·33	9·16	1·02	0·38	0·12
London—										
Meteorological Office...	102	0·07	1·96	2·55	2·04	4·89	11·51	1·73	0·58	0·15
Embankment Gardens	55	0·25	5 62	11·49	2·84	8·06	26·26	4·01	0·63	0·18
Finsbury Park ...	81	0·08	2·40	7·53	1·85	3·26	15·11	1·68	0·37	0·10
Ravenscourt Park	101	0·31	2·53	8·21	2·32	3·99	17·36	2·66	0·40	0 11
Southwark Park...	38	0·03	2·14	4·91	2·12	4·36	13·56	2 43	0·33	0·10
Wandsworth Com.	32	0·02	0·26	0·77	7·14	1·79	10·09	0·91	0·08	0·08
Golden Lane ...	88	0·08	2·79	6·45	2·12	6·69	18·13	2·72	1·02	0·39
Malvern	42	Nil.	0·18	0·25	0·82	1·69	2·96	0·74	0·18	0 02
Manchester—										
Queen's Park ...	37	—	—	—	—	—	6·20	—	—	—
School of Technology	32	—	—	—	—	—	14·50	—	—	—
Newcastle-on-Tyne	29	0·29	4·25	10·37	1·83	3·08	19·81	1·55	0·32	0·13
Rochdale...	—	—	—	—	—	—	34 63	—	—	—
St. Helens	47	0·17	2·94	7·35	1·89	4·49	16·84	1·61	1·04	0·21
SCOTLAND.										
Coatbridge	51	0·10	1·97	7·39	2·05	4·27	15·78	2·13	0·24	0·20
Glasgow—										
Alexandra Park...	54	0·18	1·84	3·64	1·03	3·03	9·72	1·42	0·13	0·08
Bellahouston Park	55	0·51	2·03	4·06	1·10	2·95	10·63	1·40	0·05	0·08
Blythswood-sq. ...	56	0·02	2·23	4·44	0·71	3·50	10·90	1·42	0·14	0·13
Botanic Gardens..	92	0·57	1·94	3·06	2·02	3·87	11·46	1·93	0·07	0·13
Richmond Park...	49	0·53	2·07	3·97	1·22	3·19	10·98	1·86	0·15	0·17
Ruchill Park ...	73	0·43	1·07	2·44	1·23	3·27	8·44	1·92	0·05	0·11
South Side Park..	48	0·02	3·66	2·66	1·11	2·87	10·50	1·42	0·05	0·06
Tollcross Park ...	41	0·15	1·46	4·46	1·16	3·56	10·79	1·89	0·09	0·10
Victoria Park ...	72	0·35	1·35	3·35	1·41	2 58	9·04	1·35	0·04	0·11

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, uel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9lb. per acre: (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables.

WAR VICTIMS' RELIEF COMMITTEE.—The fourth report of the War Victims' Relief Committee of the Society of Friends deals with the 12 months from October, 1916, to September, 1917, and describes work done among *émigrés* and *sinistrés* in France, Holland, and Russia. During the year general and medical relief has been afforded on a large scale at an outlay of nearly £70,000. In France there are 270 workers at 14 different centres, and in the maternity hospital at Châlons-sur-Marne 560 babies have first seen the light. In Russia, where the medical work is chiefly in the province of Samara, near Buzuluk, the report states:—

Crowds of out-patients attend daily at the dispensaries—an average of about 8000 per month are seen by our doctors—and they are crowds very difficult to regulate and attend to. The most serious cases ..... are admitted for treatment to the hospital at Lyubimarka, where many operations have been performed. ..... The most prevalent diseases we have had to contend with have been pneumonia, influenza, anthrax Siberian plague), malaria, typhoid, scabies, scarlatina, whooping-cough, and a few cases of small-pox. ..... The work is hampered by the lack of sufficient drugs, many of which have to be obtained from England and take many months to reach their destination.

Famine has broken out among the 100,000 inhabitants, mostly women and children, in the Samara district, and an appeal is being made for £30,000 to purchase food in Siberia and to organise its transport. Subscriptions may be sent to the honorary treasurer, Ethelberga House, 91, Bishopsgate-street, London, E.C. 2.

SMALL-POX IN INDIA.—Lieutenant-Colonel T. W. Irvine, I.M.S., Sanitary Commissioner in the North-West Frontier Province of India, states in his report for 1916–17 that in the greater portion of the province the benefits of vaccination are fully realised by the people, but there are still certain places where inoculators are active. Small-pox broke out in Peshawar city during June, 1916, and several deaths from the disease occurred.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the General Committee of this Fund was held at the house of the Royal Society of Medicine on Jan. 31st under the presidency of Sir RICKMAN GODLEE to consider the best means of making an appeal for funds in order that the work which is more than ever necessary may be continued.

In opening the proceedings the CHAIRMAN sketched the history of the Fund from its inception in November, 1914, at the instance of the Editors of the *British Medical Journal* and THE LANCET, aided by the strenuous efforts of Professor Jacobs. He touched on the early help given by Count Lalaing, then the Belgian Minister in this country, Mr. Page, the American Ambassador, the firm of Messrs. Burroughs and Wellcome, and the late Sir Richard Burbidge, and showed how the money collected had relieved the refugee doctors and pharmacists in this country and their families by money and clothing, as well as by finding them employment, adding that throughout the secretarial work had been discharged by the Editor of THE LANCET, and the grants in aid in this country made by Dr. Des Vœux in consultation with representatives of the Belgian refugees and Dr. Sprigge. During this time cases of surgical instruments and supplies of drugs were sent to doctors and pharmacists in Belgium. But in the second year of the war, he said, the need of those colleagues remaining in Belgium became the more urgent call on the Fund. On the suggestion, therefore, of Mr. H. C. Hoover, the Director in Europe of the Commission for Relief in Belgium, who pointed out that money was urgently needed by doctors and pharmacists in Belgium, and that it could be distributed directly to the doctors themselves through the agency of his organisation, drafts were sent out from time to time and duly received and accounted for by a Belgian committee. Since March, 1916, the regular course had been adopted of sending out £800 a month to the Belgian committee—the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés. The sending out of these large sums, of course, prevented the Fund from creating a reserve for repatriation purposes after the war, and now, he said, the Executive Committee of the Belgian Doctors' and Pharmacists' Relief Fund had reached a stage when the money was practically exhausted. But he hoped that those who had supported the Fund in the past, knowing that the work had been good and economical, would continue to do so, for he felt that it would be extremely sad if, at this stage, the good work should have to come to an end, and he thought that this would not occur unless intending subscribers grew afraid that the money would not reach those for whom it was intended. Every care had been taken that the money should be safely transported. When the money was first sent periodical accounts were received from Belgium through Mr. Hoover, and handed to Dr. Sprigge, showing how the money was spent, to whom it was given, and to what ends it was applied, but for some time it had become increasingly difficult to get any news out of Belgium. Since the entry of America into the war it was impossible to get information. However, Mr. W. B. Poland, who had succeeded Mr. Hoover as director of the international movement in Europe, in a moving testimony to the value of the Fund and the need for its continuance, had given assurance that all money subscribed would reach its destination.

Dr. DES VŒUX, honorary treasurer of the Fund, put the financial position of the Fund in further detail before the meeting, and pointed out what had sufficiently appeared from the chairman's statement, that when it was agreed that a regular monthly mensuality of £800 should be sent to Belgium, the termination of the resources at the disposal of the Fund was indicated to fall at about the end of 1917. He analysed the subscriptions, showing what sums had been raised in Great Britain, Ireland, Canada, Australia, South Africa, India, and other British colonial possessions. Money had also been received in the early days of the war from France and Italy. He referred to the secretarial work in connexion with the collection and acknowledgment of subscriptions as having been exceedingly heavy in the early days of the Fund, and said that much of that work had been admirably and devotedly discharged by his own private secretary, Miss Brock, who had absolutely refused to receive any remuneration whatever for her invaluable services. Dr. Des Vœux concluded his review of the situation by urging, as the paramount argument for the continuation of the Fund, the incalculable debt which this country owes to Belgium. In moving terms he pointed out that the decision of the small Belgian nation to withstand the armed forces of Germany, the might of which was very well known to them, formed a deed of courage beyond praise, while its immediate result was to give England time to throw a force, small, but, as it turned out, adequate for the purpose, upon the flank of the retreating French Army, from which fact came alike the salvation of Paris and of the Channel ports—"and what the fall of these Channel ports would have meant to our Empire," he continued, "can be deduced from the troubles which have succeeded upon the occupation of Antwerp, Ostend, and Zeebrugge." Dr. Des Vœux urged that a people who had thus sacrificed themselves for their ideals of right and their love of independence, though a bribe of incalculable immensity was offered to them to take the easy way of acquiescence, formed an example of national heroism of which history showed no counterpart. In these circumstances he concluded that everything that any citizen of the British Empire could ever do for the Belgians was due to the Belgians as a common debt.

Dr. SQUIRE SPRIGGE said that the position had been sufficiently explained by the chairman and the treasurer. It showed that a large sum of money had been collected and distributed with a creditably small outlay, but that the money was now exhausted. In that position the Executive Committee were meeting the General Committee; and after a unanimous decision among themselves that a fund that had done so much, and incidentally redounded so much to the credit of professional generosity, should be continued, despite the difficult circumstances attending any further appeal to the medical and pharmaceutical professions. The problem, he said, was how most quickly to collect at least £10,000, so that the monthly subsidy to Belgium can be maintained for a period at the scale of £800 a month, while more money is being collected; and he pointed out that one of the difficulties arose from the fact that Belgian necessities were bound to appear now, in the fourth year of the war, an old story; yet that very fact made their call for assistance more logical, for as time went on the plight of the professional classes in Belgium became steadily more desperate. He thanked the chairman for kind things said about the editor of THE LANCET, but his task had been greatly lightened by receiving throughout the powerful assistance of the organisation of the British Medical Association. This help, obtained in the past, would, he knew, be repeated, though there might be difficulty in its continuance in the same form in the future, as other charitable efforts were being made the objects of the Association's activities. In the meantime no effort must be spared to collect money, it being, he felt sure, the intention of the General Committee to endorse the view of the Executive Committee that the work of the Fund must go on. He briefly suggested that the courses open were as follows: A public appeal, which would require the active collaboration of the lay press; a more organised appeal to the medical constituency, selected local centres being formed for the purpose—this could be done through THE LANCET, with the collaboration of the British Medical Association, the Pharmaceutical Society, and the press of the two professions; and a general appeal to the medical profession by circular. Dr. Sprigge announced a donation of £100 to the Fund, made in the room, by Messrs. Parke, Davis, and Co.

Sir A. PEARCE GOULD said that everyone present would feel extremely grateful to the Executive Committee for the way in which the Fund had been administered and the money expended. To him it seemed that the work had been done with extreme care and forethought, and that they could not have employed the money in a better way. It had really reached those for whom it was intended. He joined heartily in the view that the Fund should be continued, holding it impossible that the medical profession should let it come to an end just at a time when it was needed most. The facts which they had heard, and the eloquent plea of Dr. Des Vœux, ought to stir the feelings of all men deeply. As to the question of raising money, he had no experience to guide him. The method that the Executive Committee had adopted was successful in 1914–16, but the appeal, he thought, might be extended to the public. He asked

whether there was any system of monthly subscriptions, as some members of the medical profession might wish to send a subscription once a month towards the monthly £800. He himself would be pleased to join in such a subscription as long as the war lasted.

Mr. THOMAS MABEN, representing Messrs. Parke, Davis, and Co., and speaking for the pharmaceutical profession, heartily supported Sir Alfred Pearce Gould's estimate of the work done by the Executive Committee. The fact that struck him most was the small expense that had been incurred in the distribution of the Fund. He did not think it would be possible to raise and distribute the next £20,000 for so small a sum as £90, and that fact must be kept in view in making a further appeal. With regard to the formation of a publicity committee, for approaching lay journals, it had to be kept in mind that newspapers were now very small in size, and that editors were compelled to cut down everything to a few lines. It would be an admirable thing, he thought, to appeal to the public, but it would be expensive and give a tremendous amount of work to the Executive Committee. In his view Dr. Sprigge's idea of forming centres was an admirable one, and if it could be made to work would be the most productive and the least expensive. He also would be willing to contribute to the Fund once a month for the remainder of the war.

Dr. ALFRED COX, medical secretary of the British Medical Association, said there could be no question of letting the fund lapse. They could not stop; they must go on. He asked whether it would not be possible to make an individual appeal to the two professions by letter, enclosing the story which had been told them and Dr. Des Vœux's moving appeal. He doubted the great value of the formation of local centres at the present time, because the very men who would do the work had a good deal of that exact sort of work on hand in their localities. Later on the local secretaries of the British Medical Association might be induced to take up the appeal on behalf of the Fund. As the need for money was urgent a plunge should be taken, and an individual appeal made to every member of the profession. Perhaps it would be possible to get the editors of some of the leading lay journals sufficiently interested to advocate the cause with their readers. But in the appeal to the two professions, whatever the cost, it ought to be boldy faced. As a resolution he moved that it was desirable at the proper time to circularise the medical and pharmaceutical professions.

Mr. MABEN said that there was a very large proportion of the medical profession out of the country at present, but he seconded the motion of Dr. Cox, which was unanimously adopted.

Mr. J. Y. W. MACALISTER asked for a bolder publicity for the Fund, saying that we owed our freedom and our very existence to gallant Belgium. It was absolutely true that if Belgium had not held the country until we and the French were ready the Germans would have reached Paris and occupied the French coast. What that would have meant was sufficiently indicated by the use which the Germans had made of the part of the Belgian coast they had taken.

Dr. DES VŒUX hoped that the money would be raised by the medical and pharmaceutical professions alone. It would redound so greatly to their honour if the money came direct from them, though as treasurer he would gladly receive anything from anybody.

Mr. MACALISTER asked whether it would be possible for the great drug houses to enclose with their invoices an appeal to their clients for subscriptions to the Fund, and Mr. MABEN said that his firm, he felt sure, would be quite willing to fall in with the suggestion.

The CHAIRMAN closed the meeting by thanking those present for their attendance and valuable suggestions, which would be placed before the Executive Committee at once.

LETTER FROM THE DIRECTOR IN EUROPE OF THE COMMISSION FOR RELIEF IN BELGIUM.

Dr. H. A. Des Vœux,
14, Buckingham Gate, S.W. 1,
Honorary Treasurer, Belgian Doctors' and Pharmacists' Relief Fund.

DEAR SIR,—I want to assure you again of the great need for the generosity of your members and of the help which the contributions from your Fund have been to one of the most deserving classes in the occupied territory.

More and more, as the war has dragged on, incomes have been cut off, the small reserves of professional men, artists, and those of scientific training have been wiped out, and such persons often, more than the wage-earners or the poor, have suffered. Quite without reason, it seems to me, these classes consider it a disgrace to receive public charity and be fed through the soup kitchens. Even if we declare it to be foolishness, it is nevertheless a fact that many such persons actually starve rather than put themselves in the soup lines.

It is to these that the contributions of your society bring aid and comfort. More than the much-needed money, in their time of bitter oppression, is the moral support given them in the knowledge that the people of Great Britain, and particularly their own colleagues, have not ceased to remember their struggles and sufferings.

Yours faithfully,
WM. B. POLAND,
Director for Europe.

3, London Wall Buildings, London,
Jan. 31st, 1918.

SUBSCRIPTIONS.

Subscriptions received to the second appeal for the Fund up to Jan. 30th :—

	£	s.	d.
THE LANCET	50	0	0
Medical Insurance Agency (Chairman : Dr. G. E. Haslip) ...	50	0	0
Lochiel Sheep Farming Co., Ltd. (per Meredith Townsend, Esq.)... ...	50	0	0
Sir Rickman J. Godlee	34	8	0
Dr. Herbert Spencer ...	25	0	0
Sir Thomas Barclay ...	20	0	0
Sir StClair Thomson ...	10	10	0
Dr. John Matthews ...	10	10	0
Dr. Lawrence Franklin	10	10	0
Mr. W. C. Bull	10	10	0
Mr. J. P. Elierington ...	10	0	0
A Friend	10	0	0
Per Sir R. J. Godlee ...	7	7	0
Dr. J. Auriol Armitage	5	5	0
Dr. J. Tremlett Wills ...	5	5	0
Dr. S. Squire Sprigge ...	5	5	0
Dr. Dawson Williams ...	5	5	0
Dr. C. D. Muspratt ...	5	5	0
Dr. F. W. Collinson ...	5	5	0
Dr. H. Russell Andrews.	5	5	0
Prof. T. K. Monro	5	5	0
Dr. Middleton	5	5	0
Sir Henry Burdett... ...	5	5	0
Dr. W. Collier...	5	5	0
Dr. C. O. Hawthorne ...	5	5	0
Sir Clifford Allbutt ...	5	0	0
Sir Thos. Barlow	5	0	0
Mr. J. B. Lawford	5	0	0
"Claudius Civilis" ...	5	0	0
"Anonymous"	5	0	0
Mr. J. Elliot Square ...	5	0	0
Dr. J. W. Carr...	5	0	0
Dr. F. E. Batten	5	0	0
Capt. H. H. Taylor ...	5	0	0
Dr. G. H. Dawes	5	0	0
Dr. Percy Kidd	5	0	0
Per Sir R. J. Godlee ...	3	10	0
Mr. Walter Hills	3	3	0
Mr. G. M. Arrowsmith...	3	0	0
Major Charlesworth ...	2	2	0
Lieut.-Col. J. G. Adami, A.D.M.S.	2	2	0
Jersey Medical Society (per Dr. O. C. Powell)..	2	2	0
Dr. Florence Stoney ...	2	2	0
Dr. A. E. Nicholls	2	2	0
Dr. Alfred Cox...	2	2	0
Dr. T. Jenner Verrall ...	2	2	0
Mr. Frederic Durham ...	2	2	0
Dr. Annie E. Clark ...	2	2	0
"Anon."	2	2	0
Dr. W. J. Dewar	2	2	0
Dr. H. Simmons	2	2	0
Dr. R. J. Wilson	2	2	0
Dr. T. Berry	2	2	0
Lieut.-Col. E. Le Cronier Lancaster, R.A.M.C....	2	2	0
Dr. Edwin Jackson ...	2	2	0
Dr. John Thomson... ...	2	2	0
Dr. J. Hepworth Shaw	2	2	0
Dr. E. L. Bunting... ...	2	2	0
Dr. Elsie M. Chubb ...	2	2	0
Dr. J. Quinton Bown ...	2	2	0
Dr. F. de Havilland Hall	2	2	0
Dr. Vincent Tighe... ...	2	2	0
Mr. A. Jefferis Turner...	2	2	0
Mr. E. Edwards	2	0	0
Dr. R. L. Legate	2	0	0
Dr. F. D. Bennett	2	0	0
Dr. George Hunter ...	1	1	0
Dr. J. B. Hurry	1	1	0
Dr. F. J. Baildon	1	1	0
Dr. D. R. Moir	1	1	0
Dr. R. Hingston Fox ...	1	1	0
Dr. D. Fogarty	1	1	0
Mr. C. S. Ashton	1	1	0
Dr. A. Court	1	1	0
Prof. Robert Saundby ...	1	1	0
Mr. T. R. Cook (Ed. Cook and Co., Ltd.)	1	1	0
Dr. H. A. Latimer... ...	1	1	0
Dr. F. M. Blumer	1	1	0
Dr. J. H. W. Laing ...	1	1	0
Dr. N. J. McKie	1	1	0
Dr. A. Gordon Watson	1	1	0
Dr. E. T. McDonnell ...	1	1	0
Dr. A. H. Peniston... ...	1	1	0
Dr. John Dunlop	1	1	0
Dr. A. Bowe	1	1	0
Dr. W. Adams Clark ...	1	1	0
Dr. J. A. Small	1	1	0
Mr. Meredith Townsend	1	1	0
Dr. A. S. Hedley	1	1	0
Dr. Allan	1	1	0
Dr. T. F. Keenan	1	0	0
Dr. S. M. Salaman... ...	1	0	0
Miss Pymm	1	0	0
Dr. Charles F. D. Hammond	0	10	6
Mr. W. J. Shepperd ...	0	10	6
Mr. F. Neal	0	10	0
Dr. W. B. Russell	0	7	6
Dr. T. P. Greenwood ...	0	6	0
Mr. Alfred Wright... ...	0	5	0

The following subscriptions to the Fund have been received during the week ending Feb. 4th :—

	£	s.	d.
Dr. Miller...	2	2	0
Dr. Russell Atkinson ...	1	1	0
Dr. Greenfield...	2	2	0
Lieut.-Colonel D. G. Crawford	5	0	0
Per Sir Rickman J. Godlee	10	10	0
Mr. Hodsdon, F.R.C.S.	4	4	0
Mr. J. Rutherford Morison, F.R.C.S. ...	10	0	0
Dr. F. W. Edwards ...	1	1	0
Dr. R. J. Pye-Smith ...	2	2	0
Dr. J. W. Martin	0	10	6
Dr. J. W. Russell	3	3	0
Messrs. Parke, Davis, and Co.	100	0	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS FOR 1916.

IN the city of *Birmingham*, in spite of considerable changes in the medical staff, due entirely to war conditions, the work of the school medical service has been well maintained. It was found that the part-time employment of general practitioners for carrying out medical inspections was not satisfactory, as regularity of attendance on their part could not be guaranteed. The number of children examined was 41,941, the chief defects found being those of vision, including squint (5841), and tonsils and adenoids (5318). Treatment is provided by the education authority for these cases, and for defective teeth, infectious skin cases, and minor ailments.

Of the children examined by the ophthalmic surgeon 1084 were fresh cases; 82·6 per cent. of the visual defects were hypermetropia or hypermetropic astigmatism, and 17·4 per cent. only were myopia, myopic, or mixed astigmatism. Scabies was very prevalent during 1916. There were 1746 cases. The cleansing station previously provided for verminous children was used for bathing and the treatment of scabies and two special nurses were appointed; this led to a much earlier return to school in most cases. The disease is stated to be prevalent in many parts of the city, due to influx of fresh infection by soldiers.

In *Liverpool* the routine examination of entrants and leavers was continued; that of the intermediate group had to be given up; but progress was made in the provision of treatment, a clinic being opened for throat cases (tonsils and adenoids) in the autumn. The number of children on the school registers averaged 136,575, and the number in the age-groups medically examined was 32,138. Seven of the council schools were in use by the military authorities as hospitals.

Of the children whose eyesight was tested 30·4 per cent. were found to have 6/12 or less in one or both eyes, and were referred for treatment. A large number of cases requiring some modification of the school work on account of defective vision were referred to the Director of Education to inform the teachers concerned. Two special classes for such children are held at Birchfield-road school and meet an urgent need, though the accommodation is restricted and access to the school is difficult from some parts of the city. In only 7 cases in the routine examination was pulmonary tuberculosis definitely detected (0·022 per cent.). In 8 other cases (0·025 per cent.) it was suspected. Scabies was found in only 30 children (0·09 per cent.) in the routine examination, but the total number affected was 667, a considerable increase on the numbers for the three preceding years. It is stated that frequently the whole household is involved and the children keep getting reinfected. Dr. E. W. Hope calls attention to the increase in juvenile smoking by boys of school age.

In the report on *Manchester* schools allusion is made by Dr. A. Brown Ritchie to the difficulty in obtaining treatment for school-children at the various hospitals, but every effort has been made so to modify the work as to secure the utmost benefit for the greatest number of children. No routine examinations were conducted, but 1452 special cases were inspected: the medical officers were almost entirely occupied in carrying out treatment; at the school clinics 23,932 children were treated; it is not clear whether these were attendances, or individually separate children

"Following up" was carried out successfully. In 205 cases delinquent parents were summoned to appear before the school medical officer to explain why treatment had not been carried out; nearly three-quarters of these cases were affections of the eyes, throat, or teeth, or want of cleanliness; the results of this interview are, as a rule, very satisfactory. The school nurses visit the schools for the purpose of reporting children that are not well, and most of the cases for the school clinics are obtained in this way. The education authority has undertaken treatment for ringworm, teeth, and minor ailments; 351 cases of ringworm were treated by the X rays, of which 226 were discharged cured; the remainder are still under treatment, or have left the district. The education authority maintains two residential schools for crippled children, where 158 cases have been treated, nearly all being tuberculous disease or rickets; of this number 36 have been discharged, apparently cured. There are also residential schools for delicate children, epileptics, and mentally defectives, which have been found to be of great benefit. As regards infectious disease the school incidence has been low, except for whooping-cough and diphtheria; scabies also has shown considerable increase.

At *Sheffield* during 1916 the routine examination of entrant infants was discontinued and only intermediate and leavers were dealt with, to the number of 12,104, and children specially brought forward as needing attention (11,094). At the end of the year all routine examination of age groups had to be stopped. Of 3097 eye cases dealt with, hypermetropia and hypermetropic astigmatism formed considerably the largest proportion, numbering 1210. There were 300 cases of myopia and myopic astigmatism.

At *Bristol* the work of medical inspection was carried on by Dr. Madeleine S. Baker, with six part-time assistants. 16,554 children were examined in the code groups, the most numerous defects found being those of vision and teeth and enlarged tonsils and adenoids; a case of plague is recorded. Owing to the serious loss of school attendances from ringworm special attention was paid to its incidence and treatment; 853 children were excluded on this account (compared with 747 in 1915), the loss of grant from the absence being estimated at £426.

The report by Dr. James W. Fraser on the school medica service at *Hull* is particularly interesting. The routine examinations were carried out, and 13,414 children in the three age groups were inspected in addition to 416 special cases.

Organic heart disease was diagnosed in 1·38 per cent. and tuberculosis (actual or suspected) in 0·75 per cent. (in boys 0·5 per cent., in girls 1·12 per cent.). Nutrition was satisfactory, being either excellent or normal in 86·22 per cent. Cleanliness has improved, though still unsatisfactory, pediculi capitis being present in girls in 25·72 per cent., compared with 33·14 per cent. in the previous year. Dr. Fraser alludes to the importance of this condition in view of the employment of girls in factories, as packers, or in domestic service; in many towns it has been the custom to cut the hair of these children compulsorily after due warning and failure to cleanse by the parents. The power to do this is derived from the Children Act, 1908, Section 122. Of scabies there were 717 cases, more than double the number in any previous year. Treatment has been satisfactorily carried out at the corporation sulphur baths. Ringworm of the scalp was successfully treated by the ethyl iodide method. Of 340 cases 242 were discharged cured, the average time required being 12 weeks. At Clifton-street school, where diphtheria had prevailed in the autumn of 1915, a general swabbing of all the throats was carried out in 1915 and 1916. Out of 898 throats, 110 showed Klebs-Löffler bacillus and 355 the Hoffmann bacillus; of these latter cases 34 subsequently gave cultures of K.L.B. The school was reopened in January, 1916, after thorough disinfection of buildings, testing of drains, and destruction of all school materials that could not be disinfected. The result has been most satisfactory, the whole surrounding district having benefited; there were only 16 diphtheria notifications from this school, compared with 80 in 1915.

At *Cardiff* Dr. Edward Walford reports that 5546 children were examined in the code groups, together with 1396 special cases. Defective vision (412) and throat cases (442) were the chief conditions requiring treatment.

At *Glasgow* the children examined numbered 16,695; 1·4 per cent. of the boys and 26·9 per cent. of the girls were verminous as regards the head; 25·6 per cent. of the boys and 42·1 per cent. of the girls had more than four decayed teeth. Dr. J. Hamilton McIlroy examined into the conditions of eyesight, and found that of the children presented for treatment since November, 1913, 12·74 per cent. of the boys and 22·43 per cent. of the girls had a high (more than 6 dioptres) or very high (more than 10 dioptres) degree of myopia; a new department was opened for children suffering from myopia.

At *Aberdeen* three of the primary schools were occupied by the military authorities for billeting troops, and two primary schools and a gymnasium have been given up to the parish council to permit of Oldmill poorhouse being used as a military hospital; the school work has therefore been considerably interfered with. Medical inspection, however, has been carried on. 9608 children having been examined systematically, and 6955 as special cases.

Of the former group 7·3 per cent. had defective vision, 28·6 per cent. had more than four decayed teeth, and 3·6 per cent. had adenoids or marked enlargement of tonsils. Dr. George Rose draws attention to the good results obtained at the Rubislaw special school for mentally defective children (which, however, is in need of enlargement), "In small

classes, away from the strain and competition of primary school life, and under the guidance of experienced teachers, these children have made the most of their one or two talents." Children suspected of tuberculosis are sent to the Linnmoor Home, an open-air school in the country, with excellent results. The dental surgeon reports on the neglect of parents to provide tooth-brushes. Children who had been examined and passed as having good teeth a year or two previously were found to have the permanent molars in a bad or hopeless condition. This was due to the carelessness of the parents, who had been instructed as to the use and object of the brush; when it had been regularly used the teeth were found to be in good condition.

At *Bootle* the entrant and leaver groups of children were examined to the number of 3217, but none of the intermediate age.

Nutrition was satisfactory in 86 per cent. In regard to teeth, 55 per cent. of the entrants had 4 or more decayed; but in the leavers the corresponding percentage had fallen to 29. The vision was less than 6/9 in one or in both eyes in 27·25 per cent. of the leavers. Organic heart disease was diagnosed in 41 children (1·27 per cent.). Tuberculosis of the lungs was found or suspected in 1·71 per cent., in other situations only in 0·72 per cent. During the year there were 700 cases of measles among the children attending school, compared with 147 in 1915; four infant departments were closed. Dr. W. Allen Daley carefully discusses the pros and cons of school closure, and on the whole concludes that it is probably worth while. Further than that he is not prepared to go.

At *Carlisle* also, the only children inspected were those in the entrant and leaver groups, the total number being 1544. Scabies was introduced into the city by soldiers returning on furlough from active service, and 88 children had to be excluded for this reason, leading to a loss of 3182 sessions of school attendance. As many as 12,336 attendances were lost owing to ringworm, the X ray treatment not having as yet been brought into use. The arrangements for treatment were curtailed owing to war conditions, but, as pointed out by Mr. Joseph Beard in his report, this was unavoidable.

Routine medical inspection at *Chesterfield*, which had to be dropped in May, 1915, was resumed in March, 1916; the number of children examined up to the end of the year was 1515.

Dr. R. Fraser alludes to the excellent results obtained at the Hasland Church School, as regards cleanliness, due to the active interest taken by the school staff. Every morning a "cleanliness inspection" is held by the head-master, and no boy or girl is allowed to attend school in an uncleanly state; verminous cases are at once reported to the medical officer. A similar close supervision of other schools would prevent much unnecessary loss of school time from minor skin diseases. A considerable increase of scabies is noted. A large number of children are reported as "suspected pulmonary tuberculosis": 67 of these were among the 1515 code group children, giving the very high percentage of 4·42. "This number, however, includes all cases in which, on examination of the lungs, areas of defective air entry in the apical or hilus region have been found. Probably in only a small proportion is the condition due to actual tuberculous infection." Such cases certainly present a favourable soil for harbouring the bacillus, but it is perhaps rather premature to record them as "suspected tuberculosis." It is noted that the ventilation in some of the older schools is faulty. "On entering, one is met with a wave of over-heated and evil-smelling foul air." Such a condition would certainly tend to favour the spread of tubercular and many other diseases, and without doubt "is a matter which demands attention" on the part of the education authority.

Dr. R. W. C. Pierce, in submitting his ninth report to the *Guildford* Education Authority, encloses the observations of Dr. E. J. Smyth, the medical inspector. From these it appears that the children were better fed and clothed than in ordinary times, owing probably to the abundance of employment throughout the country; also there appears to be a general improvement in the condition of the teeth in the elder children as the result of dental treatment during previous years. The children are examined as soon as possible after reaching 6 years of age, and subsequently in every year of their school life. The number inspected in the code groups was 1049.

In the report by Dr. J. Chrounell to the *Hindley* Urban District Council special attention is given to the case of "half-timers"—that is, children who, besides their school work, are employed in spinning mills or weaving mills, or in some other wage-earning occupation. This abominable system is practically confined to Lancashire and Yorkshire. The teachers report an all-round deterioration in the mental attainments of these children; they cannot keep up with the work of the class. The physical condition of some of them is deplorable; heart affections are not at all uncommon. The number inspected in the code groups was 1018; of these, 16·5 per cent. were found to need treatment for heart disease, either organic or functional, while a further 21·1 per cent. required to be kept under observation for this cause. Dr. Chronnell has found it useful to have Sections 12 and 122 of the Children Act, 1908, printed, and a copy supplied to the parent when following-up showed that nothing had been done to remedy defects; this has moved many delinquent parents to procure treatment.

At *Jarrow-on-Tyne* there were 2272 children examined in the code groups, the chief defects observed being those of vision and of hearing and throat cases. The number of children without vaccination marks continues to increase; among the infants as many as 47 per cent. were unprotected. As Dr. Eva McCall remarks, "It is unnecessary again to comment on the serious condition of affairs which these figures denote." It is to be hoped that action is being taken to remedy this neglect. It is stated that scabies has increased, to a considerable extent due to the return of infected soldiers from service, and that as there are no facilities for treatment the children are frequently absent from school for months. The provision of a cleansing station appears to be an urgent necessity.

In the urban district of *Swinton and Pendlebury* school medical inspection was carried out by Dr. E Higson, in the continued absence on service of Dr. W. S. Stalker.

An outbreak of conjunctivitis occurred in May and continued throughout the summer, mostly among children attending St. Mary's School. A temporary building, that had formerly been used as an isolation block for ophthalmic cases at the Manchester Union Schools at Swinton, was removed and erected as an infants' school for St. Mary's. The building was constructed of galvanised iron outside, and varnished pitch pine inside, with a layer of felt between the two. It was thoroughly disinfected before removal. During August 87 per cent. of the children suffering from conjunctivitis, and during September 71·3 per cent. of such children, either attended St. Mary's School or lived quite close to it.

At *York* the work of medical inspection was much reduced owing to war conditions, only 356 children of the routine ages being examined and 214 special cases.

The increased prevalence of scabies is noted, and ascribed (in part) to repeated importation by recruits, or by soldiers home on leave. An epidemic of measles prevailed in January and February (292 cases). The compulsory notification of this disease came into force on Jan. 1st, and had a good effect. Dr. Edmund Smith considers that the general public on this account more fully realise the seriousness of the disease, and the need for care and isolation, and for proper medical attendance. A new school has been opened at Knavesmire, with several novel features in its arrangements. Warm spray-baths and foot-baths are provided for 26 children. On the south side of the school the outer walls consist of practically nothing but folding windows, which can be thrown open and folded back, so as to make the rooms open-air class-rooms.

URBAN VITAL STATISTICS.

(Week ended Jan. 26th, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 17,000 000 persons, the annual rate of mortality was 17·1, against 19·6 and 18·7 per 1000 in the two preceding weeks. In London, with a population exceeding 4,000,000 persons, the death-rate was 16·9, or 3·7 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 7·7 in Leyton, 7·8 in Ilford, and 8·0 in Ealing to 26·5 in Gloucester and in Barnsley, 29·3 in Middlesbrough, and 29·4 in Carlisle. The principal epidemic diseases caused 449 deaths, which corresponded to an annual rate of 1·4 per 1000, and included 184 from whooping-cough, 133 from measles, 62 from diphtheria, 51 from infantile diarrhœa, 11 from scarlet fever, and 8 from enteric fever. Measles caused a death-rate of 2·0 in Newport (Mon.) and in Cardiff, 2·1 in Aberdare, 4·2 in Barnsley, and 7·0 in Merthyr Tydfil; whooping-cough of 2·2 in Nottingham, 2·6 in Gateshead, 2·7 in Stockton-on-Tees, and 4·2 in Barnsley; and diphtheria of 1·7 in St. Helens. The 1108 cases of scarlet fever and 1643 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 32 below and 18 above the respective numbers remaining at the end of the previous week. Of the total deaths in the 96 towns 210 resulted from violence. The causes of 45 deaths were uncertified, of which 5 were registered in Birmingham, 5 in Gateshead, and 4 in Liverpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 17·1, against 16·0 and 17·5 per 1000 in the two preceding weeks. The 356 deaths in Glasgow corresponded to an annual rate of 16·7 per 1000, and included 11 from whooping-cough, 8 from measles, 3 from infantile diarrhœa, and 2 from diphtheria. The 97

deaths in Edinburgh were equal to a rate of 15·2 per 1000, and included 1 each from diphtheria and infantile diarrhœa.

Irish Towns.—The 162 deaths in Dublin corresponded to an annual rate of 21·2 per 1000, and included 5 from measles, 4 from whooping-cough, 2 from infantile diarrhœa, and 1 from diphtheria. The 160 deaths in Belfast were equal to a rate of 21·2 per 1000, and included 12 from whooping-cough, 4 from measles, and 2 from infantile diarrhœa.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

Meeting of Comitia.

AN ordinary Comitia of the Royal College of Physicians was held on Jan. 31st, Sir FREDERICK TAYLOR, the President, being in the chair.

On the report of the Censors' Board two licentiates, Bertie Cecil Eskell and Reginald Nitch Smith, were declared no longer Licentiates of the College, and their names were expunged from the list of Licentiates during the pleasure of the College.

The following were admitted Members of the College: Dr. S. A. Bull, Dr. O. H. Gotch, Dr. W. H. L. McCarthy, and Dr. W. M. Macdonald.

Licences to practise physic were granted to 81 candidates, who, having conformed to the by-laws and regulations, had passed the required examinations.

Diplomas in Public Health were granted to the following two candidates: Dr. Norah Beaumont and Dr. G. E. Shand.

Dr. W. H. Hamer, Dr. A. F. Voelcker, Dr. F. F. Caiger, and Dr. Raymond H. P. Crawfurd were elected councillors in place of Dr. A. G. Barrs, Dr. H. G. Turney, Dr. H. M. Fletcher, and Dr. L. Humphry, who retired by rotation.

Dr. J. Fawcett and Dr. A. E. Russell were elected examiners for the Murchison scholarship.

It was resolved that the President be asked to nominate a committee to consider and report upon the question of a Ministry of Public Health.

A report from the Censors' Board upon the duties of the office of Treasurer was received and adopted.

On the report of a committee appointed to consider the celebration of the quatercentenary of the College the question was postponed for another six months.

Sir Francis Champneys was re-elected, on the nomination of the Council, a Representative on the Central Midwives Board. Dr. S. West was re-elected a Representative on the Court of Governors of the University of Birmingham for three years and Dr. W. Hale White was elected a member of the Central Council of District Nursing in London for the same period. The President and Dr. Head were re-elected the Representatives on the Conjoint Board of Scientific Societies.

The PRESIDENT announced to the College that he had appointed Dr. Percy Kidd to be Harveian orator and Dr. Aldren Turner to be Bradshaw lecturer in the present year; and that the Council had appointed Dr. H. Kenwood to be Milroy lecturer in the present year and Dr. J. C. McVail to be Milroy lecturer in 1919.

The REGISTRAR moved for the second time the following temporary by-law:—

That Dr. J. T. Calvert, who is resident in India, and Dr. Carey F. Coombs and Dr. Charles J. Singer, both of whom are detained abroad by military duties, be admitted to the Fellowship *in absentiâ*, any by-law to the contrary notwithstanding.

This was carried.

A report was received from the representative of the College on the General Medical Council concerning the session of the Council held in November last.

The Newport (Monmouth) Technical Institute and the Cheltenham Ladies' College were added to the list of institutions recognised for instruction in chemistry and physics.

After some formal business the PRESIDENT dissolved the Comitia.

FORSTER GREEN HOSPITAL, BELFAST.—At the twenty-second annual meeting of the Forster Green Hospital, Belfast, for consumption and chest diseases, held on Jan. 29th, it was reported that 61 patients remaining from the previous year and 129 since admitted were treated, making a total of 190 patients treated during 1917. Financially, instead of paying off the usual sum of about £900, there were only £350 free to reduce this balance. The receipts were £43 larger than in 1916, but the expenditure was greater, owing to the high cost of all necessaries.

Correspondence.

"Audi alteram partem.

GRADUATED EXERCISE IN PROGNOSIS.

To the Editor of THE LANCET.

SIR,—I welcome the paper of my colleague, Dr. Thomas Lewis, in your issue of Feb. 2nd under the title, "Observations upon Prognosis."

In the military hospitals of this country a large proportion of the medical patients are up and about. In every ward are men who have been transferred from one hospital to another with a record of many months of treatment. A plan by which these cases may be sorted into permanently unfit, possibly fit, and certainly fit is much to be desired. A soldier is a machine for work—for work of mind and of muscle—and the capacity of the machine can only be determined by certain tests. Having been familiar for some time with the plan adopted at the Military Heart Hospital, now at Colchester, I should like to back up strongly Dr. Lewis's suggestion "that every general military hospital should have at its disposal a training ground upon which its patients may be submitted to physical exercises under the supervision of the medical officers who treat them and sort them." I hope his reasonable and helpful suggestions will receive prompt consideration from the authorities.

I am, Sir, yours faithfully,

Oxford, Feb. 4th, 1918. WILLIAM OSLER.

To the Editor of THE LANCET.

SIR,—I have read with interest Dr. Lewis's article, "Observations upon Prognosis." The value of this article lies in the fact that it is a record of a unique kind in medicine—namely, the systematic investigation of prognosis carried out on strictly scientific lines. Disease is only made manifest to the physician by symptoms, therefore clinical research demands a knowledge of these symptoms. Symptoms may be studied from a variety of aspects, but for practical use there are two aspects from which they may be studied: first, the mechanism by which the symptom is produced; and second, the bearing the cause of the symptom has on the patient's future. The symptoms which are present in soldiers suffering from what the authorities call D.A.H. and V.D.H. were analysed in the report issued by the Medical Research Committee, and, as far as possible, the mechanism of their production investigated. This work has now been carried on to find out what happens to the individuals who have suffered from these supposed heart troubles, and Dr. Lewis's article gives us an instructive insight into the prognosis of a certain number of these cases.

The study of prognosis requires many years of observation of individuals, and therefore this contribution deals only with a portion of the inquiry, but it is advisable to issue it now in order that the experience gained from this investigation may be made use of. It is to be hoped that the military authorities will recognise the true significance of this work and take steps to use the means which are now at their disposal. In an investigation I carried out in the first year of the war I found that 90 per cent. of the cases treated as heart cases were not in the ordinary sense heart cases at all, but men suffering from exhaustion, in whom there were certain circulatory disturbances, with cardiac manifestations. It was manifest that the line of treatment adopted under a misapprehension was not suited for this type of case. The establishment of a military hospital at Hampstead and the subsequent inquiry confirmed this view. When we reflect that there are many thousands of such cases in the different hospitals, many being treated as purely cardiac cases, it is surely but what common sense would expect that steps be at once taken to utilise the knowledge and experience which this investigation has given for the treatment of these others

The methods pursued at the Military Hospital, by which the individual phenomena are clearly differentiated and the patient followed up so as to observe the significance of the phenomena, are the only methods by which clinical medicine can advance. In contrast you give an illustration of the imperfect methods which have done so much to hamper clinical investigation, in your quotation of Dr. Barringer's method for estimating the efficiency of the heart, by noting variations in the blood pressure. The first steps for under-

taking such an investigation have not been taken—namely, that of clear differentiation. Before you can assess the value of the variations in blood pressure we must know the factors at work. The only part played by the heart is to supply the force which produces the pressure; the variations are produced by other factors of which we have as yet a very imperfect knowledge. One might as well attempt to estimate the functional capacity of the lungs by measuring the size of the nose as to measure the efficiency of the heart by blood-pressure variations. It may be said that a symptom might be of value even if we do not know the mechanism of its production. This may be so, but there the evidence must be of a nature to carry conviction. To find out the value a large number of cases showing the symptom must be watched for a period of time sufficiently long to determine its significance. These cases must also be differentiated according to the presence and nature of associated phenomena, because in a case of heart failure there are invariably associated phenomena, and it is only by recognising a series of phenomena that we can detect heart failure. Reports of the kind of Dr. Barringer's invariably stop short of this. The usual way is to take a number of healthy people and a number of unhealthy who present the particular sign and stop there. Thus, a hundred years ago, before even the cause of murmurs was understood, a number of healthy people were found to have hearts free from murmurs and a number of ailing people were found to have murmurs; therefore murmurs are grave signs! This method of investigation has produced untold mischief, for to-day the whole profession is suffering from the hasty conclusions of bygone investigations. Here we see the same disastrous method being pursued. While no doubt occasionally blood-pressure observations may help to throw light upon a patient's condition, few really realise how ignorant we are as to what constitutes blood pressure. The interpretation of instrumental results does not really inform us of "systolic" and "diastolic" pressure. The terms only indicate something which we call by these names. I remember being struck by the statements of two inventors of blood-pressure instruments. One remarked that his instrument was correct because it showed a lower pressure in the smaller arteries than in the larger arteries. The other stated that his instrument was all right as he obtained the same pressure in the small arteries as in the larger, for he said it was a well-known law of physics that the pressure was the same in every part of a system of tubes.

I saw a man of 50, a year ago, tired and easily exhausted. The blood pressure in his right arm was, systolic 120, and diastolic 100. He again consulted me lately, was well and vigorous. The blood pressure was the same. He called my attention to the fact that his left radial was larger than the right, and I found it was slightly so. I took his blood pressure of the left arm, and found the systolic 160 and the diastolic 80. An X ray examination revealed no aneurysm as the cause for this. Both arms were equally well nourished, and I could not detect any abnormal obstruction.

Theorists will have a variety of explanations, but so far I am at a loss. It is because of many equally puzzling results that I am chary of the use of blood-pressure records, for until such a curious observation as the foregoing is understood we will be unable to comprehend the significance of clinical observations in blood pressure.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 4th, 1918. JAMES MACKENZIE.

To the Editor of THE LANCET.

SIR,—May I give my hearty support to the system so ably advocated by Dr. Thomas Lewis in his "Observations on Prognosis" in your issue of Feb. 2nd. I have been able to judge of the value of this method in an experience of its use for over a year while in charge of a clinic, and as president of the Categorisation Board in two Canadian hospitals.

In the categorisation of a man by physical examination we can give only an opinion of his future efficiency, and this opinion may, or may not, be correct. By graded physical exercises we are able to determine, as near as is humanly possible, just what value that man's work is going to be. In civil life a man may be a draper's clerk, because he has found for himself that he is unable to do strenuous work. Under our present arrangement, if he has no obvious structural disease, he is taken into the Army, and may be compelled to work with a stevedore. He cannot do it, reports sick, and becomes a burden to the Army.

With greater experience in the use of graduated exercises, after excluding cases of obvious organic disease, if a careful inquiry is made into the man's past history, particularly as to his ability to play games as a boy, his past illnesses, and his work in civil life, I find that we can fairly well say which one will, and which one will not, progress to the higher exercises. His exact value can be determined by his response to effort.

I have no doubt that the armies of the future will be composed of men who have been selected according to their efficiency:—

I. By physical examination: (A) In the presence of certain forms of organic change. This group would be excluded at once. (B) In the presence of other forms of organic change. A group which would be given sedentary work without training. (C) The group without any organic change, but whose value is yet to be determined.

II. By graduated physical exercises which would subdivide (C): (A) Those who are able to graduate into the higher exercises and do the strenuous work of the Army immediately. (B) Those who "lag" somewhat, perhaps because they have been in a sedentary occupation, but with a slow training will eventually be able to do strenuous work. (C) Those who fail to reach the higher exercises, who will be graded according to their value in special types of work or will be discharged as not likely to become efficient.

During war time patients convalescent from sickness or wounds would be revalued when their active treatment was completed. I have in mind a probation period, made compulsory for every man within certain age limits, during which the Government would determine exactly what effort he would be able to make in the time of war.

By this means the potential value of our Army would be known and the various groups would be sorted according to their value, instead of our present inefficient and expensive method of the soldiers sorting themselves.

I am, Sir, yours faithfully,

L. M. MURRAY,
Major, C.A.M.C.; Medical Officer in Charge of Heart Clinic.
The King's Canadian Red Cross Special Hospital, Bushy Park, Hampton Hill, Feb. 3rd, 1918.

THE POWERS AND DUTIES OF REGISTRARS OF DEATHS.

To the Editor of THE LANCET.

SIR,—Some points in reference to the above have recently arisen in my practice, and, as I have not read or heard of them being discussed before, it would, I consider, be helpful to many others who, like myself, are in general practice if we had an opinion on the matter upon which we can rely.

1. To begin with, Sect. 20 of the Births and Deaths Registration Act, 1874 (37 and 38 Vict c. 88) enacts that: "In case of the death of any person who has been attended during his last illness by a registered medical practitioner, that practitioner shall sign and give to *some person required by this Act* to give information concerning the death a certificate, &c."

2. Persons qualified to be informants (Are these qualified by virtue of the Act?) as regards deaths in houses are: (*a*) A relative of deceased present at the death; (*b*) a relative of deceased in attendance during the last illness; (*c*) a relative of the deceased dwelling or being at the time of registration in the sub-district wherein the death occurred; (*d*) a person present at the death (I omit the other persons qualified, as they are not necessary for the purposes of this communication).

3. The Act of 1874 further provides that (*a*) and (*b*) as above are constituted the primary informants of death, and they are liable to a penalty of £2 if they fail to give the required information, &c., that is to say (*a*) and (*b*) are compellable as informants.

4. The instructions on the back of the ordinary death certificate form say (but it is not made clear that the *Act* says so):—

"Registrars must therefore look in the first instance to such relatives [(*a*) and (*b*) above] to give information of death, and if the latter do not fulfil their legal obligation an *endeavour* must be made to secure the attendance of informants possessing the next best qualification in the order specified."

That is to say, there is, I submit, no suggestion or direction that in a case where there are no persons under (*a*)

and (*b*), a person under the head of (*c*) is *compellable* as informant in priority to one coming under the head of (*d*) as above.

The facts of the case giving rise to this letter are as follows:—A patient of mine died in the presence of the two nurses who had been nursing him throughout the illness and also in the presence of Mr. K., his personal friend and adviser of many years' standing. There was no one else present. The only relative is the sister—an old lady who had not been in attendance and who was not present at the death. After filling up the certificate of death I handed it to Mr. K. (as I contend I was entitled to, for there were no primary informants available, and Mr. K. was a "person qualified" in accordance with the information supplied on the back of the death certificate), and Mr. K. delivered it to the registrar and was prepared to give the information required. The registrar, however, apparently took exception to what I had done in giving the certificate to Mr. K., and flatly refused to give the latter the necessary certificate for burial, and in this way *compelled* the sister of deceased to appear as informant.

The points, then, which I wish to make and which I put in the form of questions are—

(1) Are the persons "qualified to be informants" so qualified by the Act?

(2) Are the directions to registrars (as to making an "endeavour to secure the attendance of informants possessing the next best qualification") in the Act?

(3) Was the registrar justified in criticising my action in giving the certificate to a person qualified under (*d*) instead of to one qualified under (*c*)?

(4) Was the registrar within his legal right in *compelling* the sister to act as informant?

I am, Sir, yours faithfully,

Streatham, S.W., Jan. 26th, 1918. HARRY E. SMITH.

*** It is probable that the registrar in the circumstances described acted within his rights, and complied with the provisions of the Registration of Births and Deaths Act, 1874, so far as they are framed for his guidance. He would certainly question our correspondent's construction of his conduct where he says that the registrar "compelled" the sister of the deceased to appear as informant. Dr. Smith quotes from the instructions on the certificate that an "endeavour" must be made to secure the attendance of informants, such as the lady in question, who are only required to act in default of some other person, and for whom penalties are not provided under Section 39, and the registrar would probably say that he did so "endeavour" and did so with success. In the case referred to no particular hardship upon the lady mentioned seems to have been involved, and it would appear from Section 14 of the Act that in pursuance of a written requisition the registrar might have attended at her house to register the particulars, charging a fee for doing so. It will be noted that under Section 12 preliminary notice of a death may be sent within five days to the registrar with a medical certificate by a person required to give information, to be followed within 14 days by the giving of the further particulars needed "by the person giving such notice, or some other person required by the Act to give the information." Whether this would have enabled the registrar to accept information from the person described as "Mr. K.," if the course suggested by the section had been followed, is not quite clear. As a general comment we may say that, in view of the importance of obtaining the best information available in such a matter, it may be looked upon by registrars as desirable in practice to seek it from a relative wherever this can be done. In this particular case the information could have been as well or better obtained from other sources.—ED. L.

THE SUBSTITUTES FOR SALVARSAN.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Jan. 19th an abstract was given of a circular issued by the Local Government Board on Jan. 9th to the various centres engaged in the "prevention and treatment of venereal diseases," in which it was stated that Salvarsan, as manufactured by Messrs. Evans Sons Lescher and Webb, Ltd., was considered an approved substitute for salvarsan (in small letters) as originally supplied by the German firm, Meister Lucius Brunig and Co. This new preparation has presumably been submitted to the National Medical Research Committee who, in 1915,[1] announced that kharsivan and arsenobenzol were "chemically identical with salvarsan, differing in no known respect from Ehrlich's original products, either in their final constitution or in the details of their preparation."

The experimental assurance of the National Medical Research Committee was not in the least convincing to myself after giving a fair trial to these substitutes, or to my colleague, Mr. J. E. R. Macdonagh, and our experience was such as to lead us to discourage the use of these preparations in the future. The various firms which have been trying to reproduce the original discovery of Ehrlich have studiously avoided any simulation of the title Salvarsan, a name with which the public is now perfectly familiar, and this title, now approved by the Local Government Board as a substitute, may lead to the belief that Ehrlich's original preparation is again at our disposal.

I am, Sir, yours faithfully,

J. ERNEST LANE,
Surgeon to the London Lock Hospital.

Queen Anne-street, W., Jan. 31st, 1918.

WAR PSYCHO-NEUROSES.

To the Editor of THE LANCET.

SIR,—In Captain J. M. Wolfsohn's interesting paper on the Predisposing Factors of War Psycho-neuroses there occurs this statement: "One has only to visit the wards the day after an air raid or even a thunderstorm to see most of the neurotic patients trembling, nervous, and headachy."

Such is not our experience, and in view of all that is being written in the public press at the moment on the necessity of removing neurotic patients from raid areas and the intolerable cruelty of keeping them in such areas a statement of this kind cannot pass unchallenged. The amount of hysterical manifestation in any ward is an index of the competence of the medical officer in charge, and of that alone. During an air raid there will be tremors and shakings. These are the ordinary emotional reactions of nervous people, and they will be found in the houses of the civil population with great frequency among people who will next day go to their work as usual. It is important to distinguish between an emotional reaction and hysteria. The usual emotional reaction of ordinary life is a flood of tears. Such lasts from a few minutes to a few hours, and this is the duration permissible for the tremors of patients during air raids. When that limit is passed we come to hysteria, a controllable phenomenon whose appearance in a patient actually under medical care casts the gravest discredit on that care.

Apart from these considerations, it is of the utmost importance that the question of whether it is best for the neurotic to be treated where air raids occur or not should be settled out of the public press. The hysteric is a person whose symptoms and whose comfort in life depend wholly on the education he is receiving. If he is encouraged to think that he must be bad after an air raid he will be bad after one. It will not take many air raids before the thunderstorm plays an equally powerful part. Progressively less and less loud noises will produce the result, till we get to the condition when the slightest sound disturbs, and an all-pervading calm is the only environment which can be tolerated.

If, on the other hand, the reason why a noise is disturbing to the war hysteric is explained to him—why a noise from an invisible source is worse than from a visible one—why the noise of an electric car is so specially potent as compared with that of a motor lorry—if all these things are gone into the patient will soon see that it is not noise *per se* but the stirring of repressed memories that is disturbing him; and when this has become clear and the memories are no longer repressed, the evil effects of noise soon vanish. From this he can soon be shown that an air raid for a man in a well-built house is only a noise—a noise with so many emotional associations that he may easily tremble while it is going on, but not one which need make him have any symptoms the next day.

In conclusion, in the wards under our care, where the above methods are practised—after the air raids of the 28th and 29th ultimo we had only one tremulous patient out of

[1] THE LANCET, April 10th.

130, and he had on the 28th become involved in a serious matrimonial difficulty which had upset him very greatly. Further, the majority of the patients remained in their beds instead of getting up and going into a subway which they all know they may do, and a large number remained asleep, although the noise of the guns was very loud indeed.

We are, Sir, yours faithfully,

R. WORTH,
(Temporary) Major, R.A.M.C.
T. A. ROSS,
(Temporary) Lieut., R.A.M.C.

—— War Hospital, London, Feb. 4th, 1918.

To the Editor of THE LANCET.

SIR,—The term psycho-neurosis, used more than 40 years ago by Krafft-Ebing to signify some of the phases met with in the clinical study of mental diseases, has received a considerable revival since the war and as subdivisions of this group of symptoms the terms neurasthenia and hysteria have been in fairly common use.

Latterly, owing to some opprobrium attaching to the second of these and its admittedly inapplicable derivation, the new term "pithiatic" invented by Babinski is creeping into general custom in English writings. I should like to suggest before this word meets with general acceptance, that its modification into "peithiatric (*πείθω*, to persuade or suggest, and *ἰατρος*, one who heals, or *ἰατρικός*, skilled in the medical art) be a more correct as well as a more fit word from the point of view of meaning and etymology.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 4th, 1918. ROBERT ARMSTRONG-JONES.

STOVAINE COMBINED WITH TWILIGHT SLEEP FOR GYNÆCOLOGICAL OPERATIONS.

To the Editor of THE LANCET.

SIR,—I have thought a few comments from me on Mr. F. L. Provis's article in THE LANCET of Jan. 26th may be admissible, as I have had experience of about 60 such cases. In regard to his general conclusions as to the advantages of the method, I fully agree with him.

The blindfolding of the patient and the placing of cotton-wool in the ears is now usually done before she is brought into the theatre, but for some reasons it may be better to do it "after the stovaine injection." As pointed out by Dr. Giuseppi, if tabloids are used for the hypodermic injections they should be dissolved in *distilled* water. To some nervous patients, and those who seem excited by the hyoscine (this rarely happens), I have often given a little general anæsthetic for the spinal injection; otherwise they are apt to flinch and extend the lumbar spine, so that penetration is impossible.

It is better to enter the needle, not just below the upper spine, but above the lower, for there is sometimes a tubercle of bone growing from the under surface of the upper spine just inside its tip. Billon's 10 per cent. solution is often supposed to be a "light" solution—i.e., as light as, or even lighter than, the cerebro-spinal fluid, but the makers inform me that its specific gravity at 37° C. is 1·0723. However, one can put a patient in the Trendelenburg position after five minutes without fear of nerve-blocking mounting too high, so it seems probable that its effect is more quickly expended in the immediate neighbourhood of the injection than is that of solutions made up with glucose.

Mr. Provis considers that patients liable to headaches should not be given stovaine. So far as my recollections of general practice serve me, gynæcological patients commonly complain of headaches due to various causes; and until we know more precisely than we do at present what causes headache as an after-effect (Dana in a recent article admits the obscurity of its etiology), it seems hardly advisable to deprive such patients of the important advantages of the method for an after-effect which is usually absent or, at any rate, not severe.

It may be added that as spinal analgesia does not prevent sensations of pressure and dragging in the same way as it does sensations of pain, the former should as far as possible be avoided for this reason beside others.

I am, Sir, yours faithfully,

Fairhazel-gardens, N.W., Jan. 28th, 1918. J. D. MORTIMER.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Died.

Lieut.-Col. J. McCrae, Canadian A.M.C., Consultant Physician to the British Armies in the Field, was educated at Toronto University, and qualified there in 1898. He held appointments at Toronto and at McGill Universities and at the Victoria and the Alexandra Hospitals, Montreal. He came overseas with the Canadian Forces in September, 1914, and had served in the South African War as a combatant officer. At the time of his death, which took place in France from pneumonia, he was second in command of the McGill University unit.

Lieut. P. A. Wedgwood, R.A.M.C., attached Yeomanry, was educated at Edinburgh University, and qualified in 1898. He was at one time medical officer of the Great Ouseburn Union, York, where he was in practice at Green Hammerton, and later he practised at Kirby Underdale. He joined the R.A.M.C. in April last year.

Wounded.

Capt. H. A. Cochrane, Canadian A.M.C.

Previously reported Missing, now reported Prisoner in German Hands.

Capt. H. J. Davidson, M.C., R.A.M.C., attd. Royal Fusiliers

Missing, believed Drowned.

Lieut. H. K. Bhat, I.M.S.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualty among the sons of medical men is reported:—

Lieut.-Commander A. L. Fenner, R.N., only surviving son of Dr. R. Fenner, of London.

THE HONOURS LIST.

The following awards to medical officers are announced. The acts of gallantry for which the awards were made are not yet published. All are members of the R.A.M.C. unless otherwise stated. The dates in parentheses, in those cases where bars have been awarded, refer to the number of THE LANCET in which a record of the original decoration will be found:—

Bar to the Distinguished Service Order.

Maj. (temp. Lt.-Col.) A. C. Osburn, D.S.O. (June 10th, 1916, p. 1195).

Distinguished Service Order.

Temp. Capt. F. F. Carr-Harris; Maj. (temp. Lt.-Col.) C. A. A. Stidson.

Bar to the Military Cross.

Capt. C. D. S. Agassiz, M.C. (Oct. 6th, 1917, p. 549); Temp. Capt. A. J. Blake, M.C. (Sept. 30th, 1916, p. 620); Capt. E. A. C. Fazan, M.C. (Jan. 22nd, 1916, p. 215); Temp. Capt. J. W. Macfarlane, M.C. (August 4th, 1917, p. 176); Capt. S. McCausland, M.C. (August 4th, 1917, p. 176); Capt. J. S. Wallace, M.C. (August 4th, 1917, p. 176).

The Military Cross.

Capt. R. V. C. Ash; Capt. A. J. Beveridge, Spec. Res.; Capt. J. H. Blackburn; Temp. Capt. J. V. Cope; Temp. Capt. D. McM. Dickson; Capt. (temp. Maj.) J. D. Fiddes; Capt. J. H. P. Fraser; Capt. P. J. Gaffakin, Spec. Res.; Temp. Capt. H. B. German; Temp. Capt. F. A. Grange; Temp. Capt. R. A. T. Green; Temp. Lt. A. C. Hallowes; Temp. Capt. J. P. Jones; Temp. Capt. F. B. Julian; Temp. Capt. A. G. Maitland-Jones; Lt. (temp. Capt.) W. W. McNaught; Temp. Capt. J. Manuel; Lt. J. Marshall, Spec. Res.; Temp. Capt. D. J. McAfee; Temp. Capt. F. B. McCarter; Temp. Capt. J. A. Montgomery; Capt. G. Morris, Spec. Res.; Temp. Lt. D. A. H. Moses; Temp. Lt. R. E. Owens; Capt. H. D. Pickles; Capt. J. A. Pritham, Spec. Res.; Capt. W. Robertson; Temp. Capt. L. M. Rowlette, D.S.O.; Temp. Capt. C. Russell; Temp. Capt. R. Rutherford; Temp. Capt. B. H. Swift; Capt. A. P. Thomson; Temp. Capt. G. D. K. Waldron; Capt. D. L. Wall; Capt. J. A. Young; Capt. J. C. Young, Spec. Res.

Canadian Army Medical Corps.—Capt. E. Douglas; Capt. A. D. Irvine; Capt. G. L. Jepson; Capt. J. G. MacNeill; Capt. W. H. Secord; Capt. W. E. Sinclair.

New Zealand Medical Corps.—Capt. R. C. Brewster.

I.M.S.—Lt. S. Dutt.

WOUNDED AT WINCHESTER.—It has been decided to extend the accommodation for wounded soldiers at the Royal Hants County Hospital, Winchester, by erecting on the grounds additional huts to provide 70 beds. There will be no financial liability on the hospital funds for the extension, as the cost, estimated at £2500, has been met. Miss Burrell, of Botley (who during the last 18 months has given £2000 worth of war stock to the hospital), has offered £1600, and Lady Portal has guaranteed £1000.

OBITUARY OF THE WAR.

GLADSTONE MONTAGUE HUNT, M.B., CH.M. SYD.,

MILITARY CROSS,

MAJOR, AUSTRALIAN ARMY MEDICAL CORPS.

Major G. M. Hunt, who was recently killed in action at the age of 28 years, was educated at the Sydney High School and graduated M.B., Ch.M. at the Sydney University in 1910. He acted as resident medical officer to the Goalburn Hospital, N.S.W., and as honorary surgeon to the Charleston District Hospital, Queensland, and the Bega District Hospital, after which he successfully practised at Candello, N.S.W. Receiving his commission in the A.I.F. in April, 1915, he saw service in Egypt, Gallipoli, and France. He was awarded the Military Cross early in 1917 for gallantry during the German retreat near Bapaume. He met his death while leading stretcher bearers forward in a battle for a famous ridge.

THOMAS J. FRIZELL, M.B., CH.M. SYD.,

MAJOR, AUSTRALIAN ARMY MEDICAL CORPS.

Major T. J. Frizell, who died of wounds on Dec. 2nd last at the age of 29 years, was educated at the Sydney Grammar School and graduated in medicine at the University of Sydney in 1911. He then held for two years a house appointment at the Sydney Hospital, and at the outbreak of war was a resident officer at the Coast Infectious Hospital. Receiving his commission in August, 1914, he served as an ambulance officer at Gallipoli and in France. While in charge of an advanced dressing station on Oct. 8th he received severe wounds, from which he died eight weeks later.

ERIC JOHN KERR, M.B., B.S. MELB.,

CAPTAIN, AUSTRALIAN ARMY MEDICAL CORPS.

Captain E. J. Kerr, who was recently killed in action at the age of 25 years, was son of J. H. Kerr, of the Commonwealth Treasury. Educated at Wesley College, Melbourne, he studied medicine at Melbourne University, graduating M.B., B.S. with honours in March, 1915. After holding the appointment of resident medical officer at the Melbourne General Hospital he left Australia early in 1916 and served in France, first as medical officer to a pioneer battalion and later in a field ambulance. His death, which occurred when he was acting as M.O. to a battalion, has cut short a career of promise. He leaves a wife and one child.

FRANK B. METCALFE, M.B., CH.M. SYD.,

CAPTAIN, AUSTRALIAN ARMY MEDICAL CORPS.

Captain F. B. Metcalfe, who died on Oct. 6th last, from the effects of an injury received in action, was 26 years of age, and second son of Dr. Metcalfe, of Norfolk Island. Educated at King's School, Parramatta, and St. Paul's College, Sydney, he graduated M.B., Ch.M. in July, 1916. After holding the appointment of resident medical officer to the Children's Hospital, Brisbane, he received his commission in the A.I.F. in October, 1916, and was sent to France, where he received the injury that caused his death. Captain Metcalfe was a fine sportsman, representing both his school and college at football. He was popular among his fellow students and officers, and will be much missed by them.

J. R. TILLETT, M.B., CH.M. SYD.,

CAPTAIN, AUSTRALIAN ARMY MEDICAL CORPS,

Captain J. R. Tillett, who died on Dec. 2nd last of wounds contracted on active service, was son of J. V. Tillett, Crown Solicitor for New South Wales. He was educated at the Sydney Grammar School, and entering St. Paul's College graduated M.B., Ch.M., at the Sydney University in July, 1916. After a term as resident medical officer at the Toowoomba General Hospital, he was commissioned in the A.I.F. in November, 1916. After working in a base hospital in France he joined a field ambulance, and was posted as M.O. to a field artillery brigade in June, 1917, with which unit he was serving when he received the wounds that caused his death. His good work was recognised in despatches on Jan. 1st, 1918.

Obituary.

SIR GEORGE HARE PHILIPSON, J.P., M.D. CANTAB., F.R.C.P. LOND., LL.D. GLASG. (HON. CAUSA),

CONSULTING PHYSICIAN, ROYAL VICTORIA INFIRMARY, NEWCASTLE-ON-TYNE.

By the death of Sir George Hare Philipson, which, as we announced in THE LANCET of Feb. 2nd, took place suddenly on Jan. 23rd, Newcastle-on-Tyne loses one of its most distinguished citizens. Born in Newcastle in 1836, he was the third son of the late Mr. George Hare Philipson, J.P., and served his pupilage under the late Mr. Benjamin Tullock. He afterwards entered at University College, London, and obtained the M.R.C.S. Eng. in 1858. Subsequently he went to Cambridge, where he graduated in medicine in 1862, taking the degrees of M.A. and M.D. in 1865. He became a Fellow of the Royal College of Physicians in 1873. He early became attached to the College of Medicine, Newcastle-on-Tyne, and in 1915 completed 50 years' service as lecturer and professor of medicine in that teaching school of which he was president at the time of his death. He was consulting physician to the Royal Victoria Infirmary, Newcastle-on-Tyne, and both in a professional and in an administrative capacity had identified himself closely with that institution while chairman of the house committee. Few men have done more for the medical charities in the north than Sir George Hare Philipson, and in particular for the Royal Victoria Infirmary, since he was associated for over 50 years in various capacities—honorary physician, consulting physician, chairman of honorary staff, vice-chairman and chairman of the house committee, and vice-president and president. It was after his great endeavours in connexion with the raising of money and the building of the new Infirmary that he received the honour of knighthood in 1900, after the laying of the foundation-stone by the late King Edward, then Prince of Wales. Sir George Hare Philipson was Vice-Chancellor of the University of Durham, representative of the University of Durham on the General Medical Council since 1892, Bradshaw lecturer at the Royal College of Physicians of London in 1884, and President of the British Medical Association in 1893. He had also held high office as a Freemason.

The funeral took place on Jan. 29th, a service being held in the Cathedral at Newcastle prior to the interment. The civic and representative gathering at the graveside bore ample testimony to the esteem in which the deceased physician was held. His urbanity and old-time courteousness endeared him to all. No trouble was too great for his time, and he guided the various bodies of which he was a leading member through many periods of stress and difficulty.

THOMAS FRANK RICKETTS, M.D., B.SC. LOND.,

MEDICAL SUPERINTENDENT OF THE PARK HOSPITAL, HITHER GREEN.

Dr. Thomas Ricketts, whose death we recorded in THE LANCET of Feb. 2nd, had spent his active years in charge of the small-pox hospitals of the Metropolitan Asylums Board. Born January, 1864, at Frocester, Glos., he was educated at Cheltenham, University College, London, and Guy's Hospital, qualifying in medicine in 1889. Before this he graduated in science at London University, and two years after he took the M.D. Lond., qualifying for the gold medal. He began his practical acquaintance with fevers as clinical assistant at the South-Eastern Hospital in 1891, becoming in succession assistant medical officer at the Northern, South-Eastern, and Gore Farm Hospitals, until in 1892 he was appointed temporary, and in the following year permanent, medical superintendent to the small-pox hospital ships. He was therefore in charge through the epidemics of 1893, 1895 and 1901–02. In 1915 he was transferred to the Park Hospital at Hither Green, where he remained until his death.

To his medical colleagues Dr. Ricketts will remain in grateful memory for his monograph on the "Diagnosis of Small-pox" published in 1908, a special feature of which were the unique coloured stereoscopic illustrations of Dr. J. B. Byles. This work arranged and systematised the hitherto amorphous information on the distribution of the small-pox eruption. The stimulus to this study was given by a predecessor's theory, which did not command universal acceptance, and was used by Ricketts as a basis for

accurate observation in accordance with his habit of testing any proposition with which he did not at first find himself in agreement. He spoke little but observed much; and his observations gradually crystallised into the now well-recognised principle that the incidence of the rash varies with the degree of irritation and vascularity of the skin. This book was the end-result of 15 years of accurate and deliberate work, and apart from this he wrote little, his undoubted literary ability being stifled by the pressure of administrative work. His articles in THE LANCET of 1904, giving the death-blow to the red-light treatment of small-pox, may still be read with pleasure, but for the most part his command of cogent English is unfortunately buried in various reports to the Asylums Board, such as that on numerical severity in 1909.

A former colleague writes of him: "Ricketts is an instance of a commanding intellect equipped by nature to fill a much larger part than the one assigned to him by chance. Admired by his pupils for the range of his knowledge, he also impressed them by the correctness of his judgment and by his faculty of penetrating to essentials. His keen sense of humour, breadth of view, incisive comments, and modesty endeared him to his friends, who mourn the loss of a true and loyal colleague."

JAMES SPOTTISWOODE CAMERON, M.D., C.M., B.SC. EDIN.,

CONSULTING PHYSICIAN TO THE HUDDERSFIELD INFIRMARY.

Dr. J. S. Cameron, a well-known public health authority, died at his residence, Regent's Park-terrace, Headingley, Leeds, on Jan. 30th, in his seventy-fourth year. He was educated at Edinburgh University, where he graduated in medicine, surgery, and science in 1868. In the following year he took the M.R.C.S. Eng., and a year later the M.D. at Edinburgh. Among his first appointments were those of house surgeon to the Bradford Infirmary and physician to the Leeds Borough Fever Hospital. Later he was appointed medical officer of health for Huddersfield and subsequently medical officer of health for Leeds, which last post he held for more than a quarter of a century, retiring in 1914. The whole of his professional life was, it will be seen, passed in Yorkshire, and he applied himself assiduously and with great success to the amelioration of the local health conditions. In spite of huge difficulties he cleared away many insanitary areas in Leeds, and was responsible for numerous public health improvements which have considerably lowered the death-rate in the city. Dr. Cameron, who was professor of public health in the University of Leeds, consulting physician to Huddersfield Infirmary, and past president of the Society of Medical Officers of Health, had been ailing more or less since 1914, but it was only comparatively recently that he had been confined to his bed. He leaves a widow, daughter, and two sons, one a major in the Army and the other employed in the service of the Soudan Government.

FERGUS MENTEITH OGILVIE, M.B., B.C. CANTAB., F.R.C.S. ENG.

Fergus Menteith Ogilvie, who died at his residence, 72, Woodstock-road, Oxford, on Jan. 17th, was a son of the late Mr. Alexander Ogilvie, was born in 1862, and was educated at Rugby, King's College, Cambridge, and St. George's Hospital. At Cambridge he graduated in Arts, and after qualifying M.R.C.S. Eng., L.R.C.P. Lond. in 1888, he proceeded to the M.B., B.C Cantab. in 1890. He obtained the F.R.C.S. Eng. in 1898. Ogilvie became a prominent member of the Ophthalmological Society of the United Kingdom, served on the society's council 1910–12, and contributed papers to its Transactions. At the time of his death he was consulting surgeon to the Oxford Eye Hospital.

DEATH OF DR. DENIS J. FARNAN.—The death is announced of Denis J. Farnan, M.B., B.Ch.R.U.I., at his residence in Dublin. Deceased was a comparatively young man and had a brilliant record at the Catholic University School of Medicine. He obtained honours at all his examinations, and in 1904 won the studentship of the University with record marks. Turning his attention to surgery, he obtained success, and finally became surgeon to the Mater Misericordiæ Hospital, which position he held at the time of his death.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination, held from Jan. 8th to 28th, the undermentioned candidates were approved in the subjects indicated, but are not yet entitled to diplomas:—

Medicine.—F. G. Banting, Toronto; J. M. Bickerton, King's College; E. J. S. Bonnett, St. Thomas's; H. W. Breese, Middlesex; C. E. Cobb, St. Thomas's; E. V. Corry, University College; Joyce Emily Craggs, St. Mary's; Lucie Gainsford, Charing Cross; Alice Muriel Griffiths, Cardiff and Royal Free; Magdalena Augusta Hilda Hamel, St. Mary's; L. Handy, St. Bartholomew's; G. G. Havers, Cambridge and St. Bartholomew's; W. A. Hawes, Guy's; W. E. Heath, Cambridge and St. Bartholomew's; C. E. E. Herington and T. C. Higgins, St. Bartholomew's; J. A. Iswariah, Madras and University College; G. H. Johnson, Middlesex; A. K. Ince Jones, Middlesex; E. S. Jones, Birmingham; Florence Maltby Kerruish, Liverpool; A. O. Knight, Middlesex; Muriel Elsie Landau, Royal Free; G. S. Lewis, Bristol; Janet McAllister McGill, St. Mary's; Kathleen McCrie McKeown and Gladys Matthews, Royal Free; E. Miller, Cambridge and London; Esther Novinsky, Royal Free; W. Oats, Cambridge and St. Thomas's; Nan Orchard, Royal Free; Marguerite Henrietta Pam, St. Mary's; R. J. Perkins, St. Bartholomew's; M. C. Polhill, University College; Mary Millicent Prior, St. Mary's; C. E. Rice, Cambridge and Birmingham; W. H. Simmons, Guy's; Frances Minnie Spickett, Royal Free; G. E. Tilsley, Bristol; J. P. Wells, Cambridge and St. Bartholomew's; and A. T. Westlake, St. Bartholomew's.

Midwifery.—M. Aronsohn, London; D. A. R. Aufranc, Middlesex; Annie Hardy Banks, Royal Free and St. Mary's; F. G. Banting, Toronto; M. M. Benaroya, University College; J. M. Bickerton, Cambridge and King's College; M. V. Boucaud, St. Bartholomew's; J. C. Brown, Birmingham; N. Cheua, Middlesex; Kathleen Mary Cogan, Royal Free; E. V. Corry, University College; H. Corsi, Cambridge and St. Bartholomew's; Nora Annie Crow, Royal Free; A. N. M. Davidson, King's College; C. B. Dyson, Cambridge and University College; A. Idlinow, London; F. K. Escritt, Guy's; D. W. Evans, Bristol and London; G. A. Fisher, Cambridge and St. Bartholomew's; R. B. Gibson, Sheffield; C. F. Good, London; L. B. Graham, Toronto; A. S. Green, University College; Alice Muriel Griffiths, Cardiff and Royal Free; D. P. Guilfoyle, St. Bartholomew's; W. B. Hargreaves, Manchester; W. H. Haupt, George Washington University; A. R. Hill and T. R. E. Hillier, Middlesex; R. Jenner-Clarke, London; J. Joffe, Guy's; T. A. Jones, Cambridge; Florence Maltby Kerruish, Liverpool; W. Lambert, Middlesex; Muriel Elsie Landau, Royal Free; E. H. L. Leclezio, Guy's; T. D. Llewelyn, Cardiff and St. Thomas's; G. B. Lowe, Cambridge and Birmingham; C. S. Macdougall, Toronto; Janet McAllister McGill, Royal Free and St. Mary's; Kathleen McCrie McKeown, Royal Free; J. V. Mainprize, Sheffield; A. Y. Massouda and G. Meadows, Guy's; G. Millar, St. Bartholomew's; J. R. Mitchell, Cambridge and St. Thomas's; C. Moffatt, Guy's; Edith Mary Ponsonby Morris, St. Mary's; H. Morrison, Cambridge and St. Bartholomew's; A. R. Neckles, Guy's; R. A. Olphert, St. George's; Nan Orchard, Royal Free; T. Patterson, St. Thomas's; E. A. Pearson, London; H. J. A. Pollard, Cambridge and St. Bartholomew's; H. L. Pridham, St. Bartholomew's; R. S. Ralph, Guy's; E. S. Rose and N. Rumboll, St. Bartholomew's; Elizabeth Dill Russell, Royal Free; V. R. Sanzgiri, Bombay and University College; C. G. D. Sigga, Guy's; H. E. Smith, Sheffield; J. Spira, Brussels and St. Thomas's; A. D. Symons, Bristol; A. H. Talaat, Middlesex; A. C. Teuten, St. Mary's; G. W. Theobald, St. Bartholomew's; H. W. Toms, Oxford and St. Bartholomew's; R. H. Turner, Bristol; C. H. Vernon, Cambridge and St. Thomas's; Elsie Maud Visick, Royal Free; A. D. Wall, St. Bartholomew's; Y. S. Wan, University College; D. E. Wijewardene, Cambridge and St. Thomas's; G. Winter, Birmingham; S. A. Withers, Guy's; R. Wolff, Middlesex; S. Wolff, Guy's; G. R. Woodhead, London; E. A. Woods, Oxford and King's College; J. M. M. Wright, Cambridge and King's College; and F. W. Zaglama, Manchester.

Surgery.—H. W. Archer-Hall, Birmingham; C. H. Bubb, Guy's; C. E. Cobb, St. Thomas's; H. C. Cox, St. Bartholomew's; I. de B. Daly, Cambridge and St. Bartholomew's; W. A. Flynn, Guy's; E. S. Gawne, Liverpool; S. N. Hayes, Middlesex; F. R. G. Helf, Cambridge and St. Thomas's; C. L. Hewer, St. Bartholomew's; W. A. Jackman, Bristol; A. W. Lloyd-Davis, Birmingham; J. A. Mackenzie, Manitoba; G. A. Mitchell, Liverpool; R. A. Olphert, Cambridge and St. George's; J. Peter, Middlesex; G. A. Petrie, Manitoba; L. D. Porteous, St. Bartholomew's; E. F. Rabey, Middlesex; R. H. Reece, Cambridge and St. Bartholomew's; Florence Mildred Rhodes, Royal Free; R. H. O. B. Robinson, Cambridge and St. Thomas's; H. F. Squire, Cambridge and St. Bartholomew's; G. P. Staunton, St. Bartholomew's; R. H. Sunderland and H. B. Troup, London; C. H. Vernon, Cambridge and St. Thomas's; J. E. Wood, London; and A. E. Young, Bristol.

BRITISH ORTHOPÆDIC ASSOCIATION.—An inaugural meeting of this newly constituted association was held on Feb. 2nd at Queen Mary's Convalescent Auxiliary Hospital, Roehampton House, London, S.W. The meeting opened at 10.30 A.M. with an executive session at which the association was formally constituted, a constitution and by-laws were adopted, and the following officers elected:—President: Mr. E. Muirhead Little (London); Vice-President: Sir Robert Jones, C.B. (Liverpool); Treasurer: Mr. W. E. Bennett (Birmingham); Secretary: Mr. H. Platt (Manchester). A clinical session followed, which consisted of:—1. Demonstrations by the staff of the Roehampton Limbless Hospital: (*a*) Demonstration of types of stumps, by Mr. Muirhead Little; (*b*) visit

to the workshops; (c) paper by Mr. Edred Corner on "Nerve Bulbs in Amputation Stumps." 2. Demonstration by Captain T. P. McMurray. (a) The Critchley artificial leg; (b) temporary peg l[illegible] A discussion on Mr. Corner's paper was opened by Colonel T. H. Openshaw, and continued by Mr. D. M. Aitken, Mr. A. S. B. Bankart, Mr. W. E. Bennett, Mr. W. R. Bristow, Mr. R. C. Elmslie, and Captain T. P. McMurray.

UNIVERSITY OF LONDON: ADVANCED LECTURES IN PHYSIOLOGY.—A course of four advanced lectures on "The Electrical Examination of the Nervous System," by Professor A. D. Waller, professor of physiology in the University of London, and Mrs. Mary D. Waller, B.Sc., lecturer on physics at the London (Royal Free Hospital) School of Medicine for Women, delivered in the Physiological Laboratory of the University, at 5 P.M., on Wednesdays, was commenced on Feb. 6th; the other dates are Feb. 13th, 20th, and 27th. The lectures will deal especially with the electrical measurement of emotive reactions—"psycho-galvanic phenomena"—and will be accompanied by practical demonstrations. The application of the methods to military medical practice will be considered. The lectures are addressed to advanced students of the University and others interested in the subject, and admission is free without ticket.

PLAGUE IN MALTA.—In a report by Dr. A. V. Bernard, medical officer of health for Malta, on an epidemic of plague occurring on the island during March, 1917, the author shows that plague has never been endemic in Malta. It has, however, several times been imported into the island from the countries adjoining the Levant, and on each such occasion the infection rapidly overran the island and the mortality was very heavy. Four visitations took place during the dominion of the Order of St. John in the years 1592, 1623, 1655, and 1675, and on the last occasion no less than 11,300 deaths are said to have occurred in a population of about 70,000. The islands thereafter remained immune for a period of 138 years. In 1813-14 the last serious epidemic occurred, when 4668 deaths were recorded out of a population of over 100,000. Last year's attack was limited to eight cases, of whom four died.

THE Food-Saving Exhibition at the Institute of Hygiene (33, Devonshire-street, London, W. 1) on Monday next will, at the request of the Ministry of Food, remain open next week during the afternoons.

Mr. J. R. Mason, L.R.C.P. & S. Edin., has been elected an alderman of Newcastle-upon-Tyne.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Staff Surg. O. Mills has been placed on the retired list.

To be temporary Surgeons: G. F. V. Anson, T. M. Payne, J. L. Gregory, F. G. Wood.

ROYAL NAVAL VOLUNTEER RESERVE.

Hon. Staff-Surg. C. S. Brewer to be Staff-Surgeon.

ARMY MEDICAL SERVICE.

Surg.-Gen. R. Porter, C.B., is placed on the retired list.

Temp. Lieut.-Col. F. R. Hill, R.A.M.C., to be a Deputy Assistant Director-General, vice Lieut.-Col. F. McLennan, who has vacated the appointment.

Hon. Col. Sir F. Treves, Bart., G.C.V.O., C.B., to be temporary Colonel.

Temp. Lieut.-Col. L. S. Dudgeon to be temporary Colonel.

ROYAL ARMY MEDICAL CORPS.

Temp. Maj. A. G. Phear to be temporary Lieutenant-Colonel.

Temp. Capt. C. M. Row to be temporary Major without increased emoluments whilst specially employed.

Temp. Hon. Lieut. G. Hodge to be temporary Honorary Major whilst in charge Springburn and Woodside Central Red Cross Hospital.

Captains to be Majors: C. M. Drew, A. G. Cummins, M.C., (Acting Lieut.-Col.) A. S. Littlejohns, D.S.O., W. R. Galwey, M.C., R. G. Archibald, D.S.O., F. A. McCammon, M.C., G. De la Cour, (Acting Lieut.-Col.) W. Egan, D.S.O., (Brevet Major) R. G. H. Tate, A. Dawson, A. S. Williams, D.S.O., V.C. Honeybourne, C. T. Edmunds, V. G. Johnson, (Acting Lieut.-Col.) C. R. M. Morris, D.S.O., (Acting Lieut.-Col.) R. E. U. Newman, M.C., E. W. M. Paine, F. D. G. Howell, D.S.O., M.C., (Temp. Major) P. Sampson, D.S.O., (Brevet Major) M. G. Dill, J. B. Grogan, (Acting Lieut.-Col.) E. M. O'Neill, D.S.O., (Acting Lieut.-Col.) G. S. Edwards, D.S.O., (Acting Lieut.-Col.) J. W. L. Scott, D.S.O., W. C. Smales, D.S.O., A. H. Bond, T. C. C. Leslie, D. de C. O'Grady, L. G. Gibson, P. S. Stewart, T. W. O. Sexton, (Acting Lieut.-Col.) T. T. H. Robinson.

Temp. Capt. E. F. Ackery to be temporary Major, without increased emoluments.

Temp. Major W. H. Bryce, from Craiglockhart War Hospital, to be temporary Captain.

Temp. Capt. R. H. McGillveuddy, M.C., to be acting Major whilst commanding troops on a Hospital Ship.

Temp. Capt. W. H. Allen relinquishes the rank of temporary Major on ceasing to command troops on a Hospital Ship.

Lieutenants to be Captains: J. T. Westby, J. H. E. Annequin, O. C. L. Hughes, W. C. Craig, G. C. McEwan, R. J. Smith, P. D. McLaren, J. R. S. Mackay, R. A. Woodhouse, E. R. W. Gilmore, J. A. Panton, N. C. L. B. Tweedie.

Temporary Lieutenants to be temporary Captains: J. T. W. Stewart, H. F. Devis, G. H. Jones, J. P. Fenily, M. Henry, J. W. Lindsay, A. E. Woodall, T. E. Regan, J. D. Laidlaw, J. R. O'Brien, G. R. Rew, H. F. Stephens, R. D. MacGregor, G. C. Swanson, H. W. Perkins, A. G. Jenner, J. L. Johnston, W. J. Isbister, M.C., T. C. D. Watt, M.C., G. Robertson, J. G. Havelock, D. H. Fraser, M.C., S. Marle, T. H. G. Shore, R. Dane, E. A. Running, E. J. Peill, A. P. Draper, M.C., A. H. Bostock, D. L. Morrison, F. R. Tickle, V. G. Ward, H. S. McLennan, A. L. Gardner, J. H. F. Wiligress, W. E. Tanner, J. Howells, H. L. W. Wemyss, F. Osborne, H. H. V. Welch, K. L. Bates, L. V. Gatt, N. Bradley, H. Barber.

To be temporary Captains: W. Millerick, C. R. Brown.

A. G. Bodman, late temp. Capt., is granted the honorary rank of Captain.

To be temporary Lieutenants: Lieut. L. L. Cassidy, from Unattached List (T.F.). C. Dean, F. Heatherley, R. Theron, J. W. O'Farrell, G. D. M. Beaton, V. J. A. Wilson, C. E. F. Salt, F. King, G. C. Maguire, J. A. Johnson, S. S. Rosebery, G. Young, A. L. Sutherland, W. H. A. Elliott, H. S. Dixon, A. Barrett, A. T. Moon, G. H. Rodolph, F. A. Hadden.

E. F. W. Buckell, late temp. Capt., is granted the honorary rank of Lieutenant.

Officers relinquishing their commissions: Temp. Lieut.-Col. D. Macaulay. Lieut.-Cols. E. H. Taylor, A. R. Parsons, T. E. Gordon. Majors W. A. Winter, R. C. B. Maunsell, C. P. Ball, A. J. McA. Blaney, D. Kennedy. Temp. Major J. C. Webb (granted honorary rank of Major). Temp. Hon. Major T. M. Burn-Murdoch (on ceasing to be employed at Springburn and Woodside Central Red Cross Hospital). Capts. W. Boxwell, F. H. McC. C. Crawley, M. R. J. Hayes, G. E. P. Meldon, T. Gray (on account of ill-health). Temp. Capts. S. Ritson (on account of ill-health), C. Bannigan, M.C., J. G. Taylor, H. Caplan, M. Murphy, F. M. Murray, E. Evans, M.C., J. Lee, P. H. Rawson, M.C., W. G. Thompson, S. A. D'Arcy, J. Warwick, J. I. O'Sullivan, M.C., J. A. Arkwright, E. Mansfield, J. H. Crofton, S. R. Richardson, G. Sutherland, P. de C. Potter, W. H. Gray, J. E. Ruck, A. R. O. Milton, B. T. Edye, R. Roberts, W. V. Pegler, C. R. Skyrme, H. W. Evans, J. D. Finlay, G. J. Jones, R. D. Bell, J. Humphreys, F. Murchie (on account of ill-health contracted on active service, and is granted the honorary rank of Captain), R. Proctor, J. MacArthur, T. R. Hammond (on account of ill-health contracted on active service), S. L. Alexander (on account of ill-health contracted on active service), L. A. P. Burt (on account of ill-health contracted on active service, granted honorary rank of Captain), D. Campbell (on account of ill-health contracted on active service, granted honorary rank of Captain), A. N. W. Colahan (on account of ill-health contracted on active service). Lieuts. I. Clarke, E. O'Reilly, D. A. H. Moses, F. R. Elwood, A. Y. Hutchison, R. Tempany, N. Flower, A. G. Holms, T. H. Macfie, B. A. Slocombe. Temp. Lieut. G. Barnes (on account of ill-health).

Canadian Army Medical Corps.

Temp. Major (acting Lieut.-Col.) T. McC. Leask to be temporary Lieutenant-Colonel, and to command Canadian Field Ambulance.

Temp. Capt. H. W. Wadge, M.C., to be acting Major.

Temp. Capt. R. Shaw to be temporary Major.

GENERAL RESERVE OF OFFICERS.

Capt. A. F. Heaton to be Major.

SPECIAL RESERVE OF OFFICERS.

J. O. Hamilton, late Captain, to be Honorary Captain.

TERRITORIAL FORCE.

Surg. Lieut.-Col. (Hon. Surg. Col.) W. C. James, Honourable Artillery Company, resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform.

Lieut.-Col. (temp. Col.) F. Kelly relinquishes his temporary rank on vacating the appointment as Assistant Director of Medical Services, and is restored to the establishment.

Major (temp. Lieut.-Col.) S. A. Coad to be Lieutenant-Colonel.

M. Bruce to be temporary Major, Northumberland Medical Volunteer Corps.

Capt. C. T. Matthews, from T.F. Reserve, to be Captain.

Capt. (acting Major) S. R. R. Matthews relinquishes his acting rank on an alteration in posting.

Capt. G. Holmes resigns his commission on account of ill-health, and is granted the honorary rank of Captain.

Capt. A. A. McWhan to be temporary Major whilst specially employed.

Medical Officer and Temp. Lieut. J. J. M. Dowzer to be temporary Captain, 4th Battalion, Lancashire Volunteer Regiment.

Capt. G. Henderson resigns his commission on account of ill-health contracted on active service, and is granted the honorary rank of Captain.

Capt. G. W. Ellis is seconded whilst holding a special appointment.

D. Revie to be temporary Captain, Northumberland Medical Volunteer Corps.

J. C. B. Williams to be Medical Officer and temporary Lieutenant, 2 3rd Battalion, North Riding Volunteer Regiment.

Ll. Lloyd, from R.A.M.C., to be Lieutenant.

TERRITORIAL FORCE RESERVE.

Capt. A. H. Savage, from R.A.M.C., and Capt. W. G. Lloyd, from 2nd London Field Ambulance, to be Captains.

DEATHS IN THE SERVICES.

Surg.-Gen. Sir Adam Scott Reid, K.C.B., I.M.S. (retired), on Feb. 2nd, aged 69. He joined the service in 1872, reaching the rank of Surgeon-General in 1902. He served in the Afghan War, 1879-80, the Chin Lushai Expedition, 1889-90, and in the North-West Frontier, 1897-98 (despatches, medal with two clasps), and was initiator and president of the malaria conference at Nagpur in 1901. He was granted a good service pension in recognition of his services. He had been Principal Medical Officer in the Punjab Command.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Midwives (Ireland) Act.

THE Royal Assent was given on Wednesday, Feb. 6th, to the Midwives (Ireland) Act, which passed through its various stages in the concluding weeks of the session.

Nurses in Mediterranean Shipping Disaster.

In stating that eight nurses had lost their lives in two British vessels which were sunk by enemy action in the Mediterranean, Mr. MACPHERSON, the Under Secretary for War, added that there was no Order that could be conferred upon them posthumously. Their nearest relatives, however, would receive in due course the commemorative medallion which would be issued in respect of all who had fallen in the war.

Prorogation of Parliament.

Parliament has been prorogued. It will begin a new session on Tuesday, Feb. 12th. Amongst the Acts receiving the Royal assent on Wednesday were the Representation of the People Act, the Military Service Act, and the National Health Insurance Act.

HOUSE OF COMMONS.

WEDNESDAY, JAN. 30TH.

R.A.M.C. Officers Special Reserve.

Major DAVID DAVIES asked the Financial Secretary to the War Office whether he would remove the hardship on the Special Reserve officers of the Royal Army Medical Corps by placing them on the same rate of pay as temporary officers, Royal Army Medical Corps, as at present the pay and allowances of the former were about £50 per annum less than the latter.—Mr. FORSTER wrote in reply: The question was fully considered by the Cabinet Committee on officers' pay, and it was decided not to make the change proposed. These Special Reserve officers get the same emoluments as Regular officers, and, like them, will get the new children's allowances at full rates in the junior ranks, while the officers serving under special contract will get half rates only.

THURSDAY, JAN. 31ST.

Housing in Scotland.

Mr. WATT asked the Secretary for Scotland whether he would give figures, similar to those already given for England and Wales by the English Local Government Board, showing the number of houses which local authorities in Scotland were willing to build at the end of the war, provided the financial assistance promised by the Government was satisfactory.—Mr. MUNRO replied: From the return made by 297 local authorities out of 311 from whom information was asked, it appears that the total number of houses which local authorities in Scotland indicate their willingness to build on the condition specified in the question is nearly 99,000.

Medical Service in Palestine.

Major NEWMAN asked the Under Secretary for War whether the Army Council had had brought to their notice temporary breakdowns and shortcomings in the medical service and commissariat that occurred during the earlier stages of the British advance from Gaza to Jerusalem; and could he say that both departments were now working with greater smoothness and that all avoidable suffering from lack of transport and medical comforts was spared to our troops.—Mr. MACPHERSON answered: No, Sir. I am not aware that there was any breakdown in the medical or commissariat arrangements. In view of the rapidity of the advance difficulties naturally increased. There was an increase of intestinal disorders in the force due to the great strain undergone by the troops during the advance and the coldness of the nights.

FRIDAY, FEB. 1ST.

Venereal Disease in the Army.

Mr. PETO asked the Under Secretary for War whether his attention had been called to the War Office letter to general officers commanding, dated March 18th, 1916, which stated that the Army Council could not accept suggestions made with regard to prevention, which would imply the adoption of any system of prophylaxis which might be said to afford opportunities for unrestrained vice; whether this deterred Army medical officers from taking steps to prevent the spread of venereal disease in the Army; and whether the Army Council would now withdraw any restriction which prevented effective measures being taken to avoid the waste of man-power in the Army from this cause.—Mr. MACPHERSON, in reply, referred the honourable Member to a previous answer.

Mr. PETO: Can the honourable gentleman give any idea, if not actual figures, as to the number of men who have passed through hospital suffering from venereal disease in a single year or who at any rate have been incapacitated from that cause?—Mr. MACPHERSON: I cannot give the figure definitely.

Mr. OUTHWAITE: Is it to be inferred that [illegible] officers are prevented from taking every possible step to cure this hideous disease?—Mr. MACPHERSON: The honourable Member cannot infer that from the replies given now or previously.

Sir J. D. REES: Is not that the result?—Mr. MACPHERSON: No, I do not think so.

TUESDAY, FEB. 5TH.

Medical Service of the Air Force.

Major DAVID DAVIES asked the Under Secretary to the Air Ministry (1) whether the War Office had been requested by the Air Council to transfer Royal Army Medical Corps officers at present attached to the Royal Flying Corps units to the medical services of the new Air Force; and whether he could state how soon this transfer would be carried out; (2) whether the Medical Advisory Committee had reported to the Air Council, and whether any steps had been taken to carry out the recommendations contained in this report.

Mr. W. ROCH asked the honourable gentleman whether it was proposed to appoint a Director-General of Medical Services or a medical directorate for the new Air Force; and whether it was proposed to appoint a representative of the medical directorate on the Air Council.—Major BAIRD replied: I will answer those three questions at the same time. The arrangements for the medical care of the Air Force are still under consideration, and I am not yet in a position to make any statement on the points raised in these questions. I anticipate that the matter will be settled at a very early date.

Medical Staff of U.S. Air Force.

Mr. HOGGE asked the Under Secretary to the Air Ministry whether he could state what arrangements were made for medical services in connexion with the United States of America Air Force; and whether this force had its own medical staff distinct and separate from that of the American Army and Navy.—Major BAIRD answered: I understand that the medical arrangements for the two branches of the United States air service are under the charge of specially qualified officers of the military and naval medical departments.

Furlough of Wounded Soldiers.

Sir W. HOWELL DAVIES asked the Under Secretary for War whether the Army authorities were prepared to allow reasonable furlough to wounded soldiers who had been in military hospitals for more than six months in cases where such furlough was recommended by the medical officer in charge of the patient.—Mr. MACPHERSON replied: No, Sir; it is not proposed to extend facilities for furlough in hospital, as it is found that furlough generally retards recovery in the case of both officers and men.

Shell Shock Cases in London Hospitals.

Colonel LESLIE WILSON asked the Under Secretary for War whether there were any, and, if so, how many, hospitals in the London district where patients suffering from shell shock were treated; if so, whether steps would be taken to remove all such patients to the west country or some other area in which they would be free from air raids.—Mr. MACPHERSON replied: As many cases as possible are being moved out of the London district and 450 have just left. My honourable and gallant friend will realise that the difficulty of finding other suitable accommodation is considerable.

Hospital Accommodation for Disabled Soldiers.

Lord HENRY CAVENDISH-BENTINCK asked the Under Secretary for War whether the refusal of the military authorities to keep the agreement arrived at between them and the Pensions Minister that discharged soldiers should have the right of re-entry into military orthopædic hospitals had caused great shortage of the accommodation necessary for the treatment of cases needing further care and operations, and consequently serious hardship to many disabled soldiers; and if he would say what was the reason for taking this step.—Mr. MACPHERSON said in reply: The War Office has been obliged to discontinue the assistance which it was giving to the Ministry of Pensions, as there would not have been sufficient accommodation for the oversea soldiers. Accommodation occupied by the War Office in civil hospitals will be released as soon as possible, when an increased number of beds for serving soldiers can be made available elsewhere. The War Office is in close consultation with the Ministry of Pensions upon this point.

Lord H. CAVENDISH-BENTINCK: Is it not a fact that a very large number of disabled soldiers cannot obtain further treatment in hospitals in consequence of the refusal of the War Office to take them in?—Mr. MACPHERSON: The War Office is in constant communication with the Ministry of Pensions on the subject.

The Director-General of Medical Services.

Mr. W. ROCH asked the Under Secretary for War whether Sir Alfred Keogh was still performing the duties of Director-General of Medical Services; and whether he could state when the Director-General, whose appointment was recently announced, would assume full responsibility for the direction of the Royal Army Medical Corps.—Mr. MACPHERSON answered: The reply to the first part of the question is in the affirmative. The new Director-General will assume full responsibility on March 1st next.

Repair of Soldiers' Artificial Limbs.

Answering Major DAVID DAVIES, Sir A. GRIFFITH-BOSCAWEN (Secretary to the Ministry of Pensions) said: The centres for the repair and renewal of artificial limbs are the fitting hospitals at which the limbs are supplied. There are at present six of these hospitals open—one in Wales, one in England, two in Scotland, and two in Ireland, and five more will shortly be opened in England, including a second one in London. The centre for the whole of Wales is the Prince of Wales Hospital, Cardiff.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W
THURSDAY, Feb. 14th.—Papers:—Prof. E. W. MacBride: The Artificial Production of Echinoderm Larvæ with Two Water-vascular Systems and also of Larvæ Devoid of a Water-vascular System.—Prof. J. B. Farmer: On the Quantitative Differences in the Water-conductivity of the Wood in Trees and Shrubs.—Capt. M. Greenwood: On the Efficiency of Muscular Work (communicated by Prof. L. Hill).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
Wednesday, Feb. 13th.
OCCASIONAL LECTURES: at 5.30 P.M.
(1) Sir Almroth Wright, M.D., F.R.S.: The Methods of Testing and Judging the Divers Forms of Wound Treatment.
The chair will be taken by the President, Sir Rickman J. Godlee, Bart., K.C.V.O., M.S., and the Director-General, Sir Alfred Keogh, G.C.B., will be present.
(2) Sir Anthony Bowlby, K.C.M.G., will make a Communication on "The Early Treatment of Wounds at the Front with Special Regard to Primary Suture."

MEETINGS OF SECTIONS.
Thursday, Feb. 14th.
CONJOINT MEETING of the SECTIONS OF NEUROLOGY, SURGERY, and SUB-SECTION OF ORTHOPÆDICS with the WAR OFFICE COMMITTEE FOR THE STUDY OF TETANUS, at 8.30 P.M., to consider the subject of "Muscle Contracture following Injury."
Friday, Feb. 15th.
OTOLOGY (Hon. Secretaries—Somerville Hastings, J. F. O'Malley): at 5 P.M.
Discussion:
On the Influence on the Ear of Abnormalities and Diseases of the Nose. To be opened by Dr. William Hill.
ELECTRO-THERAPEUTICS (Hon. Secretaries—E. P. Cumberbatch, Robert Knox): at 8.30 P.M.
Paper:
Lieutenant Noel Burke, R.A.M.C. (T.): The Electrical Treatment of Paralysis.
Demonstration and Exhibition of Lantern Slides and Skiagrams.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W. 1.
MONDAY, Feb. 11th.—8.30 P.M., Paper:—Mr. H. W. Carson: Clinical Aspects of Tuberculous Mesenteric Glands.
SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.
FRIDAY, Feb. 15th.—5.30 P.M., Paper:—Sir Ronald Ross: Treatment of Malaria.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 11th.—5 P.M., Hunterian Lecture:—Prof. H. Carlill: The Diagnosis and Treatment of Syphilis of the Central Nervous System.
WEDNESDAY AND FRIDAY, 5 P.M., Lectures:—Prof. W. Wright: The Quaderni d'Anatomia by Leonardo da Vinci.
POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Feb. 11th.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.
TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.
NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N. 15
MONDAY, Feb. 11th.—2.30 P.M., Children's Diseases: Dr. T. R. Whipham. Gynæcological Diseases: Mr. F. L. Provis. Surgical Operations: Mr. E. Gillespie. 3 P.M., Medical In-patients: Dr. R. M. Leslie. 7 P.M., Venereal Clinic: Dr. Kinsella.
TUESDAY.—10 A.M., Surgical Operations: Mr. J. Howell Evans. 2.30 P.M., Medical Out-patients: Dr. A. G. Auld. Surgical Out-patients: Mr. Howell Evans. Nose, Ear, and Throat Diseases: Mr. C. H. Hayton. X Rays: Dr. Metcalfe. 3.30 P.M., Medical In-patients: Dr. A. J. Whiting.
WEDNESDAY.—2.30 P.M., Medical Out-patients: Dr. T. R. Whipham. Diseases of the Skin: The Dermatologist. Eye Diseases: Mr. A. S. Worton. Operations:—Nose, Ear, and Throat: Mr. Hayton; 4 P.M., Eyes: Mr. Worton. 5 P.M., Venereal Clinic: Mr. E. Gillespie and Mr. Benians.
THURSDAY.—2.30 P.M., Medical Out-patients, Dr. A. J. Whiting. Surgical: Mr. H. W. Carson. X Rays: Dr. Metcalfe. Gynæcological Operations: Dr. A. E. Giles. 3.30 P.M., Special Demonstration:—Selected Medical Cases: Dr. R. M. Leslie.
FRIDAY.—2.30 P.M., Surgical Out-patients: Mr. Gillespie. Eye Diseases: Mr. A. S. Worton. 7 P.M., Venereal Clinic: Mr. E. Gillespie and Mr. Benians.
SATURDAY.—2.30 P.M., Surgical Operations: Mr. H. W. Carson.
THE THROAT HOSPITAL, Golden-square, W.
MONDAY, Feb. 11th.—5.15 P.M., Special Demonstration of Selected Cases.
THURSDAY.—5.15 P.M., Clinical Lecture.
ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
TUESDAY, Feb. 12th.—5 P.M., Dr. W. K. Sibley: X Rays. High Frequency.
THURSDAY.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Fungus Diseases of Skin and Hair.
ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C. 1. Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—
WEDNESDAY, Feb. 13th.—4 P.M., Lecture V.:—Sir Arthur Newsholme: The Problem of Tuberculosis Under War and After War Conditions.

Appointment.

MILLER, J. W., M.B., Ch.B. Glasg., D.P.H. Cantab., has been appointed Assistant Medical Officer of Health to the Lewisham Borough Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BARROW-IN-FURNESS, COUNTY BOROUGH OF.—Assistant Medical Officer. Salary £350 per annum.
BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer. Salary £320 per annum, with apartments, &c.
BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street.—Resident Surgical Officer. Salary £250 per annum, with board, &c.
BOLINGBROKE HOSPITAL (INCORPORATED), Wandsworth Common, S.W.—House Surgeon. Salary £150 per annum, with board, &c.
BRISTOL GENERAL HOSPITAL.—Clinical Assistant.
BRISTOL ROYAL INFIRMARY.—House Physician and House Surgeon, Salary at rate of £120 per annum, with board, &c.
BURY INFIRMARY.—Junior House Surgeon. Salary £200 per annum, with board, &c.
CHESTER ROYAL INFIRMARY.—Locum Tenens House Surgeon for one month.
DERBY, DERBYSHIRE ROYAL INFIRMARY.—Resident Surgical Officer.
DORSET COUNTY COUNCIL.—Temporary Female Assistant Medical Officer. Salary at rate of £350 per annum.
DUDLEY, GUEST HOSPITAL.—Vacancy on Honorary Surgical Staff.
DURHAM, SHERBURN HOSPITAL, near Durham.—Locum Tenens. Salary £9 9s. per week.
EVELINA HOSPITAL FOR CHILDREN, Southwark, London, S.E.—House Surgeon. Salary at rate of £160 per annum, with board, &c.
GRANGE-OVER-SANDS, WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant Medical Officer. Salary £200 per annum, with board, &c.
GUY'S HOSPITAL, S.E.—Clinical Assistant. Salary 21s. per session.
HOSPITAL FOR DISEASES OF THE THROAT, Golden square, W.—House Surgeon. Salary £100 per annum, with board, &c.
LINCOLN MENTAL HOSPITAL, Lincoln.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, &c.
LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Casualty Officer. Salary £120 per annum, with partial board.
MANCHESTER, ANCOATS HOSPITAL.—Unqualified Resident. Salary £50 per annum, with board, &c.
NORTHAMPTON, NORTHAMPTONSHIRE WAR HOSPITAL, Duston.—Resident Medical Officer. Salary £1 daily, with board, &c.
NOTTS EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £350 per annum.
OLDHAM COUNTY BOROUGH.—Assistant Schools Medical Officer. Salary £325 per annum.
PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board, &c.
PORTPATRICK, PARISH OF.—Resident Medical Officer and Public Vaccinator. Salary £60 per annum and vaccination fees.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—Surgeon. Salary £25 per annum.
ROCHDALE INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £200 per annum, with board, &c.
ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Clinical Assistants.

UNIVERSITY OF LONDON.—External examiners.
WARWICKSHIRE COUNTY COUNCIL.—Temporary Assistant County Medical Officer of Health. Salary £400 per annum.
WIGAN COUNTY BOROUGH EDUCATION DEPARTMENT.—Assistant School Medical Officer. Salary £300 per annum.

Births, Marriages, and Deaths.

BIRTHS.

MEAKINS.—On Feb. 3rd, at "Cliveden," Taplow, the wife of Lieutenant-Colonel J. C. Meakins, C.A.M.C., of a daughter.
NELIGAN.—On Feb. 3rd, at the British Legation, Teheran, Persia, the wife of A. R. Neligan, M.D., of a son.
WOODS.—On Jan. 28th, at High-street, Kensington, the wife of Dr. R. Stanton Woods, temporary Captain, R.A.M.C., of Welbeck-street, of a daughter.

MARRIAGES.

CORBETT—BARR.—On Jan. 25th, at St. Nicholas Church, Harpenden, Captain W. Victor Corbett, R.A.M.C., to Dorothy Frances Barr, elder daughter of the late Mr. and Mrs. W. Bauer, of Harpenden, Herts.
OPIE—COLLETT-MASON.—On Jan. 26th, in Cairo, Philip Opie, Captain, R.A.M.C., D.A.D.M.S., to Margaret Marion Collett, eldest daughter of Mr. and Mrs. J. C. Collett-Mason, Eardisley, Herefordshire.
ROOTH—DE PUTRON.—On Jan. 31st, at St. Nicholas Church, Elstree, James A. Rooth, M.R.C.S., of Brighton, to Beatrice, daughter of the late John A. de Putron, of Fontaine Fleurie, Guernsey, and Abbotsbury, Elstree.

DEATHS.

DALE.—On Jan. 29th, at Mitcham-lane, Streatham, S.W., suddenly, George Dale, M.B., C.M.
DE LA MOTTE.—On Feb. 1st, suddenly, at Bournemouth, Peter William De la Motte, M.R.C.P., M.R.C.S., of Staines, aged 64 years.
HERRING.—On Jan. 27th, at 109, Earl's-road, Nuneaton, John Francis Herring, L.R.C.P., L.R.C.S. Edin., D.P.H. Camb., late of Atherstone and formerly of Bulith, in his 74th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

Offices: 423, STRAND, LONDON, W.C. 2.

MANAGER'S NOTICES.

TO SUBSCRIBERS IN THE UNITED STATES.

Messrs. Wm. Wood and Co., of New York, have relinquished their Agency for the supply of THE LANCET in the United States. The Manager of THE LANCET will be pleased to supply copies direct from the London Office to subscribers in the United States at the strictly prepaid rate of $8 for twelve months. Subscriptions may commence at any time. Drafts and Money Orders should be made payable to the Manager, Mr. CHARLES GOOD, 1, Bedford-street, Strand, London, W.C. 2, England.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C. 2, are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given on advertisement page 4.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied.

Notes, Short Comments, and Answers to Correspondents.

THE WATERFORD PEERAGE CASE.

THE recent trial in the High Court of Justice of the claim of a man named Tooth to be the Marquis of Waterford presented little of interest to the medical profession except in the fact that the claimant, in order to succeed, had to prove the existence of a plot against him, in which a medical practitioner would have been one of the most important of the conspirators. The story put forward and the suggestion made was that the infant son and heir of Lord Waterford did not die, but was put out, and kept out, of the way in order that some future wife of the late peer might bear him a son whom he would prefer to his first-born child by a wife of whom he appears to have been extremely fond. It is not necessary to recapitulate details with which all interested are familiar, but the words of Lord Coleridge completely vindicating those mentioned as having been concerned in the alleged plot may be quoted. His lordship, in giving judgment, said: "I am asked to say that the child was born alive, smuggled from Chesham-place without the knowledge of the servants or anyone, no one knows whither, and that some dead child was smuggled into the house no one knows whence; that Dr. Gream, who was present at the birth, knowingly gave a false certificate of death; that Kynaston, Lady Waterford's maid, was privy to this conspiracy; and that Lord Waterford, who had had a son and heir born to him, and members of his family were privy to this conspiracy. All I can say is that I should be credulous indeed if I were to adopt so incredible a story based on nothing but insinuations."

THE CAUSE AND PREVENTION OF MYOPIA.

To the Editor of THE LANCET.

SIR,—I was much interested in Dr. F. W. Edridge-Green's article on this subject in THE LANCET of Jan. 26th owing to the fact that I am myopic myself. I had perfect vision till about the age of 15, when I had a severe attack of measles, complicated with severe conjunctivitis and blepharitis. On returning to school I noticed that I had difficulty in seeing the writing on the blackboard. This difficulty increased for two or three months. I then had my eyes tested and was ordered concave glasses, which I have worn ever since. My degree of myopia has remained about the same for about 30 years. I can well remember that I did very little reading up to the age of 15, but I have done a good deal since.

I have noticed a great deal of myopia in the uneducated classes, and have often asked them why they did not wear glasses. The reply has generally been that if they applied for a job and wore glasses they failed to get one, as employers did not like to see their employees wearing glasses. Amongst women this applied chiefly to domestic servants, shop assistants, and girls going in for the stage. Amongst men I have found numbers of labourers of all kinds—gardeners, carmen, cab-drivers, and even fishermen and deck hands on coasting vessels, who were very myopic. On the other hand, I have found men who do very fine work, such as engravers and watchmakers, who have perfect vision.

In my opinion Dr. Edridge-Green's deduction of the cause of myopia is a sound one and entirely explodes the old theory that the chief cause of myopia is close work.

I am, Sir, yours faithfully,
Feb. 1st, 1918. M.R.C.S.

ZOOLOGY IN RELATION TO HEALTH AND FOOD.

Professor Arthur Dendy, who has organised a course of lectures by distinguished experts at King's College, London, on "Animal Life and Human Progress," delivered the first of the series himself on Jan. 28th. He pointed out that the part played by zoology in the amelioration of human life was as great as that of either chemistry or physics. Man, by virtue of his mind, had conquered in the struggle for existence creatures more numerous and powerful than himself, but in the matter of food had not yet obtained complete mastery, a large part of our wheat-supply being lost each year owing to the depredations of weevils and allied pests. At the Natural History Museum zoological investigations on destruction of Army biscuits by the flour-moth had resulted in the past being vanquished. Recognising the importance of the study of the lowest forms of animal life, the University of London had instituted a chair of protozoology. Not the least of the debts we owed to lower animals was the education which they offered us if we would avail ourselves of it. Many so-called human inventions had been anticipated by animals, mimicry being the basis of

camouflage. The great monsters of the past had exhausted themselves in the development of brute strength. Man hoped to progress by his brain power, and we required to this end a more rational system of education and the encouragement of higher ideals. Lord Haldane, who presided, said that man in his generation was responsible for leaving the world at a higher level than that at which he found it. If in man there was nothing great but mind, in mind there was nothing great but that which was high and spiritual.

The second lecture, on "Some Educational and Moral Aspects of Zoology," was delivered on Feb. 6th by Professor G. C. Bourne. The third lecture of the series, "Museums and Research," will be given by Mr. C. Tate Regan, F.R.S., on Feb. 13th, at 5.30 P.M.

COLONIAL HEALTH REPORTS.

Somaliland.—A report on the Somaliland Protectorate for the year 1916-17, prepared by Mr. D. J. Jardine, Secretary to the Administration, has been received at the Colonial Office. It states that no reliable information is available as to the Somali population in that country, though 300,000 is generally quoted as an approximate figure. The last census taken of the alien community showed the following results:—Indians, 741; Arabs, 1857; mixed races, 798. The general public health during the year under review was satisfactory, although the continued rise in the price of foodstuffs affected the poor. Apart from Government employees, only a small portion of the native population comes under the care of the medical department. The tribespeople are seldom brought to a hospital until they are *in extremis*, and the hospital sick returns give little or no indication of the general health of the population. The prevalent diseases are tuberculosis, venereal diseases, chronic rheumatism, bronchitis, conjunctivitis, and ulcers. A large number of fevers of uncertain origin are shown in the year's returns, and in many cases it is difficult for the medical officers to diagnose cases in which natives come to a dispensary with fever, take a dose of medicine, and do not return. Relapsing fever is very rife in the Hargesia district, where the *Ornithodorus moubata* tick is found. The natives themselves believe that the Congo floor-maggot is the causative agent. The fever has been successfully treated with atoxyl, but it is unfortunate that salvarsan or some similar preparation cannot be obtained at present. The Berbera Hospital contains 43 beds, but there are generally considerably more sick people in the hospital than there are beds, as the Somali patient generally prefers to lie on the ground in the compound. During the year 506 patients were admitted to the hospital, and the deaths numbered 26. In the dispensary 14,267 out-patients were treated. The number of persons treated in the other hospitals of the Protectorate were: Bulhar, 7563; Zeyla, 11,627; Burao, 2550; and Hargesia, 852; total deaths in these hospitals, 8. Camp hospitals constructed of mat huts, erected on wooden framework, are in use in each of the coast towns as isolation hospitals.

Falkland Islands.—According to a report for the year 1916, prepared by Mr. C. F. Condell, Colonial Secretary, the estimated population of the colony (inclusive of South Georgia) on Dec. 31st, was 3220 (2267 males and 953 females). The birth-rate for the year was 16·4 per 1000 and the death-rate 7·14, as compared with 13·37 and 8·13 respectively in 1915. The general health was considerably better than in 1915. In the early months of the year there was a moderately severe epidemic of influenza in Stanley, but fortunately it caused no deaths. The symptoms were the same in nearly all cases—severe headache, epistaxis, a dry cough, and a high temperature. Practically all the severe cases were adults; the children examined were suffering chiefly from what appeared to be slight colds. The majority of other cases were intestinal, and in most of these the patient had to be referred to the colonial dentist for treatment before any improvement from drugs or dieting could be hoped for. Twenty-six patients were admitted to the King Edward Memorial Hospital during the year.

INDIRECT KINDNESS.

To the Editor of THE LANCET.

SIR,—Your annotation in the current issue on the use of horseflesh as food for man puts the case very convincingly from the man's point of view. There is also the horse's point of view. The cruelty involved in the export of horseflesh to Belgium has long been a matter of anxiety to lovers

Communications, Letters, &c., have been received from—

A.—Australian Book Co., Lond.; Messrs. Arnold and Sons, Lond.; Anglo-French Drug Co., Lond.; Dr. E. L. Ash, Lond.; Ancoats Hospital, Manchester, Sec. of.

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I.—Institute of Hygiene, Lond.; Insurance Committee for the County of London; International Tyre and Rubber Co., Lond.

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N.—Notts County Council, Nottingham, County Medical Officer of; North of England Obstetrical and Gynæcological Society.

O.—Col. M. D. O'Connell; Sir William Osler, Bart., Oxford; *Oldham Standard*, Proprietors of.

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R.—Mr. H. M. Rainsford, Lond.; Messrs. Roger and Rennick, Wigan; Mr. G. W. Rundle, Lond.; Dr. A. Routh, Lond.; Reading Pathological Society, Hon. Librarian of; Royal Society, Lond.; Royal College of Physicians of Ireland, Dublin, Registrar of; Royal College of Physicians, Lond., Registrar of; Capt. A. Reid, R.A.M.C.; Mr. H. Rundle, Southsea; Dr. R. R. Rentoul, Liverpool; Mrs. Robt. Smith, Chislehurst; Dr. W. C. Rivers, Worsboro' Dale.

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U.—University of London, Academic Registrar of; University College, Exeter, City Librarian of; University of Liverpool, Academic Dept., Controller of; Ultima Physical Appliance Co., Chicago.

V.—Dr. B. Valverde, Rio de Janeiro.

W.—Dr. F. P. Weber, Lond.; Col. Sir Almroth Wright, C.B.; Warwickshire County Council, Warwick, Deputy County Medical Officer of Health of; Messrs. White and Poppe, Coventry; Capt. J. R. Williamson, R.A.M.C.; Capt. J. M. Wolfsohn, M.R.C.; Surg. J. P. S. Walker, R.N.; Westmorland Sanatorium, Meathop, Medical Supt. of; Messrs. John Wright and Sons, Bristol; Capt. W. McC. Wanklyn, R.A.M.C.(T.).

Y.—Messrs. H. Young and Sons, Liverpool.

(*Continued at foot of next page.*)

of fairplay to animals, and has indeed more than once been the subject of comment in your columns. The presence of large numbers of Belgians in this country has made such export unnecessary, although I believe it was already prohibited a little time before the war. On the other hand, the adoption of horsemeat by our own people as an ordinary article of diet will raise the value of the carcase of the old horse to such an extent that it will be false economy even to the sweater to work him to death. Self-interest as well as humane feeling will therefore dictate the proper feeding and care of the old horse.—I am, Sir, yours faithfully,

Feb. 2nd, 1918. E.

FOOD CONTROL: PART OF A STORY.

THREE animals were approaching by different routes the gate of the desert. One was a wolverene, which, as every one knows, is a voracious animal of the weasel kind, sometimes called the glutton; the second a Bactrian camel, a large ruminant cushion-footed quadruped with two humps; the third an elderly Persian cat, well known at home for her abstemiousness. At the turnstile to the desert all three were stopped by the gatekeeper. To the camel he said: "You cannot pass here with two humps, you must give one up"; which being done, the wolverene at once gobbled up the hoard, while the gatekeeper looked on with a pitying smile. As the cat passed the turnstile the gatekeeper gave her a friendly nod. The correspondent who has sent us this parable has omitted to supply a sequel.

LIQUID PARAFFIN AS A TASTE-SUBSTITUTE FOR BUTTER AND SALAD OIL.

To the Editor of THE LANCET.

SIR,—Amongst the many who derive benefit in regard to chronic constipation, hæmorrhoidal troubles, &c., from the regular or intermittent use of liquid paraffin there are not a few who nevertheless dislike taking it very much on account of what they regard as a sickly, oily sensation, if not actually a nauseating taste. This seems to me a great pity at the present time, when it can be easily made to serve the purpose of an agreeable taste-substitute (though, of course, not in any way a food-substitute, or nutritive-substitute) for butter and salad oil, exactly in the same way that saccharin serves as a taste-substitute for sugar. One of the simplest ways to effect this is at dinner to mash up one or two boiled potatoes with one's fork, then to stir up the liquid paraffin with the potato mash, and eat the mixture with the addition of salt, pepper, mustard, or savoury gravy or soup, according to taste. Various kinds of salads and savoury mixtures may be made on the same plan, but though more carefully prepared, they are not likely to offer any great advantage over the foregoing method in regard to the taking of liquid paraffin. Another excellent way in which liquid paraffin may be really *enjoyed* with meals, is to mix it on one's plate with ordinary brown sugar and then to eat the mixture, spread on bread, toast, or plain biscuit, as a kind of taste-substitute for honey. This mixture may be taken with a baked apple, &c., instead of with bread, toast, or biscuits. By all such means the paraffin may be made agreeable instead of nauseous or disagreeable to the taste. Moreover, as it is thus swallowed, well mixed up with food, one of the great disadvantages in the therapeutic use of paraffin will be at the same time avoided—namely, the occasional passage (sometimes involuntary passage) of small liquid oily motions, more or less free from true fæcal material—an occurrence which may prove the source of considerable discomfort and annoyance.

I am, Sir, yours faithfully,

F. PARKES WEBER, M.D., F.R.C.P.

Harley-street, London, W., Feb. 2nd, 1918.

Sapolio is thanked for his donation to the Royal Medical Benevolent Fund, which has been sent on to the secretary of the Fund.

H. M. R.—The site of the swelling is determined primarily by gravity, although the capillaries of the eyelids seem to be specially vulnerable to increased pressure.

C. S. McA.—An artificial hand with the properties described is produced by a number of manufacturers at home and abroad. The adaptation of the artificial arm to the user's particular occupation is now the subject of experiment.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 6th, 1918.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 31	...	55	48	29	35	35	Foggy
Feb. 1	...	51	44	30	35	35	Do.
,, 2	...	47	45	30	39	40	Overcast
,, 3	0·08	26	50	38	45	46	Raining
,, 4	...	52	49	37	46	48	Do.
,, 5	0·03	60	50	43	48	48	Cloudy
,, 6	0·01	68	52	43	45	47	Do.

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war

The following journals, magazines, &c., have been received:—British Journal of Ophthalmology, St. Bartholomew's Hospital Journal, Dublin Journal of Medical Science, Arkiv för Kirurgi, Bulletin of the Johns Hopkins Hospital, Maryland Medical Journal, American Journal of Clinical Medicine, American Journal of Medical Sciences, Archives of Pediatrics, Transactions of the Society of Tropical Medicine and Hygiene.

(Continued from previous page.)

Letters, each with enclosure, are also acknowledged from—

A.—Messrs. Allen and Hanburys, Lond.; Messrs. Armour and Co., Lond.; Mr. G. H. Adam, West Malling; Messrs. S. Allcock and Co., Redditch.

B.—Mr. E. S. Bolton, Thornbury; Belfast Corporation, Chamberlain of; Dr. N. W. Bourns, Lond.; Dr. C. W. Budden, Hoylake; Dr. W. H. J. Brown, Lond.; Bridewell, &c., Hospital, Lond., Clerk to the; Berkshire Education Committee, Reading, Sec. of; Major R. A. Beaver, R.A.M.C.; Beckett Hospital, Barnsley, Sec. of; British Oxygen Co., Lond., Sec. of; Birmingham Hospital Saturday Fund, Sec. of; Bloomsbury Dispensary, Lond., Sec. of; Messrs. Burroughs Wellcome and Co., Lond.; Basford Rural District Council, Clerk to the; Dr. J. M. Barbour, Ramsey; Mr. W. Bryce, Edinburgh; Dr. H. Barber, Derby; Birmingham Education Committee, Treas. to the; Barnwood House Hospital, Gloucester.

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F.—Dr. E. G. Fearnsides, Lond.; Messrs. Fannin and Co., Dublin; Mr. W. B. Felton, St. Newlyn East; Messrs. H. Frowde and Hodder and Stoughton, Lond.

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J.—Mr. T. Jackes, Lond; Messrs. Jacob and Johnson, Winchester

K.—Lieut. R. M. Kharegat, I.M.S.; Kensington Dispensary, Lond., Sec. of; Kent Education Committee, Maidstone, Sec. of; King Edward VII. Sanatorium, Midhurst, Steward of.

L.—Dr. B. R. Lloyd St. Albans; Sir W. Arbuthnot Lane, Bart., Lond; London Library, Sec. of; Messrs. Leslies, Lond.; *Lincolnshire Chronicle*, Lincoln, Manager of; Mr. S. Leavy, Innisfail London Temperance Nurses' Co-operation, Sec. of; Dr. J. S. Low; Messrs. Lee and Nightingale, Liverpool; L. A. M.

M.—Dr. F. C. Madden, Cairo; Dr. L. J. Minter, Brighton; Lieut. R. W. M. Mettam, A.V.C.; Manchester Corporation, Acct. to the; Medical Research Committee, Lond., Sec. of; Mr. A. McHarg, Rutherglen; Dr. J. E. Macliwaine, Belfast; Dr. C. A. McBride, Lond.; Messrs. J. Menzies and Co., Edinburgh; Mrs. Milne, Lond.; M. J.

N.—New Northern Spinning and Weaving Co., Belfast; Nottinghamshire County Council, Nottingham, Acct. to the; National Provident Institution, Lond., Sec. of.

P.—Messrs. W. Porteous and Co., Glasgow; Prudential Co. of America, Newark; Mr. R. J. Pye-Smith, Sheffield; Capt. O. Pitt, R.A.M.C.; Mr. E. Privat, Toulouse; Major W. M. Power, R.A.M.C.; Dr. A. C. A. Packman, Stroud.

R.—Dr. J. E. Ruck, Chester; Mr. A. Rippon, Hull; Messrs. Rosenberg and Sellier, Turin; Prof. C. Ruata, Perugia; Dr. S. C. Russell, Lond.; R. E. M.; Messrs. Robinson and Sons, Chesterfield; R. J. M.; Messrs. Reynell and Son, Lond.; Dr. J. Russell, Gorleston.

S.—Dr. T. J. Selby, Frodsham; Mr. J. A. Storey, Dunstable; *St. Paul Medical Journal*, St. Paul; "Sapolio"; St. Andrew's Hospital, Northampton, Clerk to the; St. John's Hospital for Diseases of the Skin, Lond.; Mr. W. P. Stocks, Withington; Dr. W. S. Syme, Glasgow; Messrs. Stevens and Brown, Lond.; Salford Corporation, Treas. to the; Spar and Kreditkasse, Burgdorf; St. John Ambulance Association, Lond., Acct. to the; Messrs. W. H. Smith and Son, Lond.

T.—Mr. J. Thin, Edinburgh; Mr. T. W. Thomas, Caerphilly; Dr. Wu Lien Teh, Harbin; Tottenham Education Committee, Clerk to the.

V.—Messrs. Van Houten, Lond.; Mr. F. H. V. Voss, Rockhampton.

W.—Dr. Joan Watts, Malta; Messrs. Whiffen and Sons, Lond.; Dr. W. Webster, Newcastle; Mr. W. A. Ward, Richmond; Messrs. J. Woolley, Sons and Co., Manchester; W. J. M.; Dr. G. S. Wigoder, Dublin; Mr. J. J. Waddelow, Whittlesea; Wiltshire County Council, Trowbridge; Dr. S. Wilton, Exeter; Warneford, &c., Hospital, Leamington, Sec. of; Mr. C. Worth, Lond.; Warwick County Council, Acct. to the; W. C. H.; Messrs. Wilcox, Jozeau, and Co., Lond.